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HIGHWAY INFORMATION SYSTEM

RELEASE 4.0

PROGRAMMING DETAILS
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HIGHWAY INFORMATION SYSTEM

RELEASE 4.0

PROGRAMMING DETAILS
PART B

770,
STATE DOCUMENTS

Prepared for the:

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS
PLANNING AND RESEARCH BUREAU

In cooperation with the:

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

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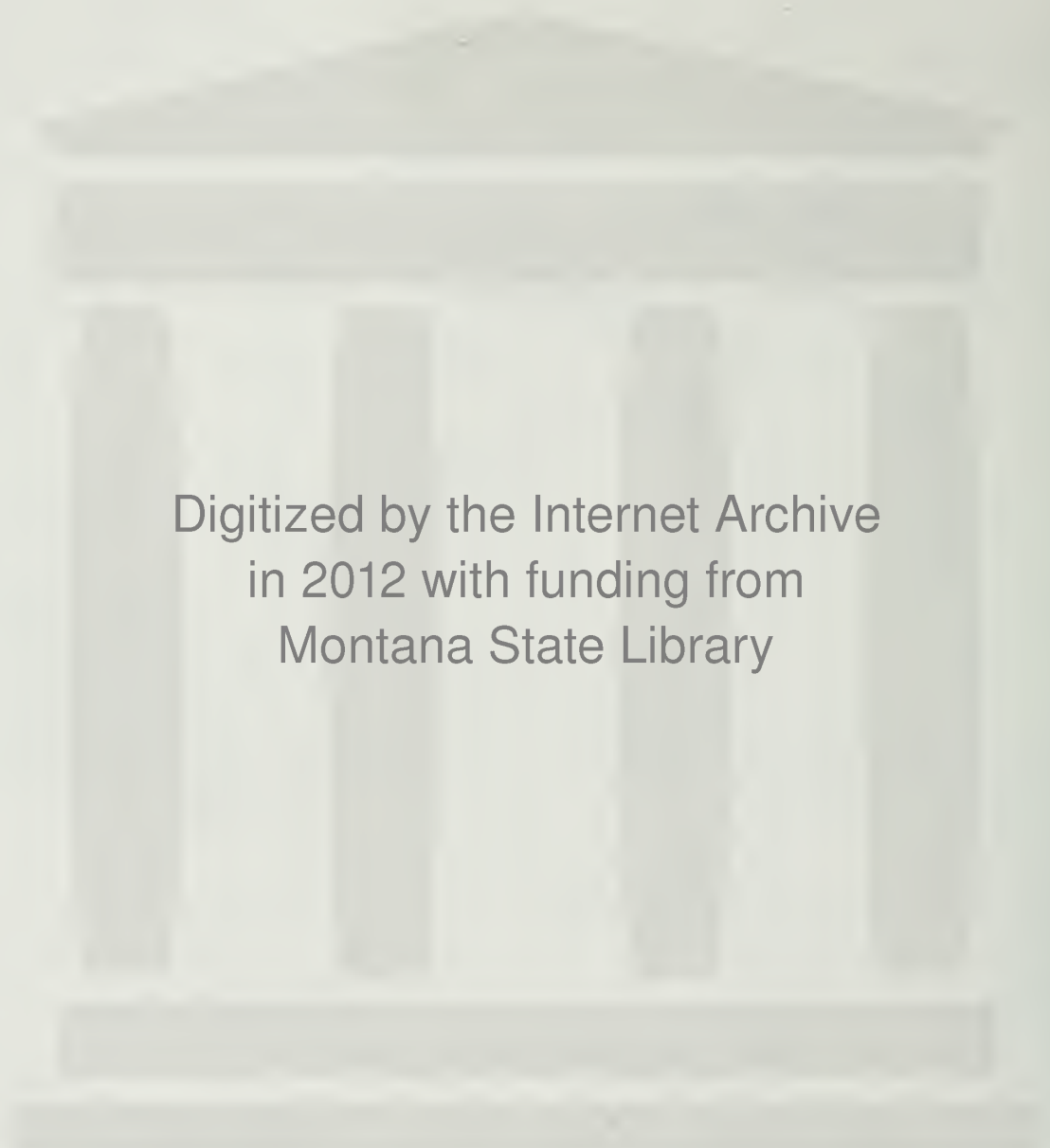
Project Director: Ralph W. Zimmer, P.E.

Prepared by:

Larry J. Coats, Edward G. Knoyle, and Ralph W. Zimmer

DEPARTMENT OF CIVIL ENGINEERING AND ENGINEERING MECHANICS
MONTANA STATE UNIVERSITY
Bozeman, Montana 59715

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FOREWORD

This report is a portion of the documentation of Release 4.0 of the Highway Information System undertaken by the Department of Civil Engineering and Engineering Mechanics, Montana State University. The retrieval system has been evolving over the last several years under the sponsorship of the Planning and Research Bureau of the Montana Department of Highways with some assistance from the Highway Traffic Safety Division, Montana Department of Community Affairs.

Release 4.0 of the Highway Information System is documented in the following volumes:

Highway Information System Release 4.0: System Overview

Provides an introduction to the Highway Information System.

Highway Information System Release 4.0: Index

Provides an index to all manuals except the System Overview and Program Listings.

Highway Information System Release 4.0: User's Manual

Describes how to use the Highway Information System for retrieving information and for printing reports and summaries.

Highway Information System Release 4.0: Data Coding Manual

Describes the data card formats for entering data into the Highway Information System files.

Highway Information System Release 4.0: System Maintenance Manual

Provides information for performing scheduled system backups and file reorganizations and for allocating system files.

Highway Information System Release 4.0: Record Formats & Subroutines

Describes the internal record formats of the various files and provides calling sequences to subroutines. This manual is intended for persons writing new programs to add to the Highway Information System.

Highway Information System Release 4.0: Programming Details

Describes the existing programs and provides a guide to the program listings. This manual is intended for persons maintaining existing software in the Highway Information System.

Highway Information System Release 4.0: Program Listings

Contains computer-generated listings of all source programs of the Highway Information System.

Although the project was conceived, initiated, and primarily funded through the Planning and Research Bureau of the Montana Department of Highways, the development cost of selected portions of the system was borne by the Highway Traffic Safety Division of the Montana Department of Community Affairs.

In developing the system, the CE & EM Department has had the privilege of using an IBM OS/VSl 370/145 computer located at the Data Processing Bureau of the Montana Department of Highways in Helena. PL/I has been used for most of the programs because of its versatility and ease of use. BAL (assembler) has been used for most input-output modules and for other modules that require its increased capabilities and efficiency over PL/I.

The project could never have progressed to its current state without the continued and patient encouragement and assistance from the Planning and Research Bureau and the Data Processing Bureau of the Montana Department of Highways, and from the Highway Traffic Safety Division of the Department of Community Affairs.

The project conclusion was also hastened by the significant effort of other project personnel: Scott H. Danforth, R. Helene Knowlton, and Doug M. Geiger.

CHAPTER 11

TABLES

The tables programs comprise the HIS21 subsystem. Source modules and load modules have names of the format HIS21xxx, where "xxx" is a three-digit number. This chapter describes the source modules and load modules of the tables subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs. Program usage and subroutine linkages are described in other HIS release 4.0 publications.

The LIST-PROGRAM-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21000	PL/I	LIST-PROGRAM-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21000	PLISTART	HIS.REL4PT0	LIST-PROGRAM-TABLE

The HIS21000 Source Module - This module is the mainline program of LIST-PROGRAM-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDGS - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21000 Load Module - The LIST-PROGRAM-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21000	LIST-PROGRAM-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-PROGRAM-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21001	PL/I	UPDATE-PROGRAM-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21001	PLISTART	HIS.REL4PT0	UPDATE-PROGRAM-TABLE

The HIS21001 Source Module - This module is the mainline program of UPDATE-PROGRAM-TABLE. It contains the following external references:

PRINTER,PRINT,SETPOS,SETINST,SETHDGS - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
TABLWR,TABLWRI,TABLWRC - TABLWR subroutine
CHECKDD - CHECKDD subroutine

The HIS21001 Load Module - The UPDATE-PROGRAM-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20056	CHECKDD interface
* HIS20058	GETLIST subroutine
HIS21001	UPDATE-PROGRAM-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-CITY-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21010	PL/I	LIST-CITY-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21010	PLISTART	HIS.REL4PT0	LIST-CITY-TABLE

The HIS21010 Source Module - This module is the LIST-CITY-TABLE mainline program. It contains the following external references:

PRINTER,PRINT,SETHDG,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21010 Load Module - The LIST-CITY-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21010	LIST-CITY-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-CITY-TABLE Program

<u>Source Module</u>	<u>Function</u>	<u>Language</u>
HIS21011	UPDATE-CITY-TABLE mainline	PL/I

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21011	PLISTART	HIS.REL4PT0	UPDATE-CITY-TABLE

The HIS21011 Source Module - This module is the mainline program of UPDATE-CITY-TABLE. It contains the following external references:

PRINTER,PRINT,SETINST,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
 TABLWR,TABLWRI,TABLWRC - TABLWR subroutine

The HIS21011 Load Module - The UPDATE-CITY-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21011	UPDATE-CITY-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The INCITY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21012	Assembler	INCITY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
INCITY	HIS.SUBRTN4	INCITY subroutine

The HIS21012 Source Module - This module is the INCITY subroutine. It contains the following external references:

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The INCITY Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of INCITY by automatic call when link-editing. It contains the HIS21012 source module.

The CVTCITY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21013	Assembler	CVTCITY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CVTCITY	HIS.SUBRTN4	CVTCITY subroutine

The HIS21013 Source Module - This module is the CVTCITY subroutine. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The CVTCITY Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of CVTCITY by automatic call when link-editing. It contains the HIS21013 source module.

The GETCITY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21016	Assembler	GETCITY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
GETCITY	HIS.SUBRTN4	GETCITY subroutine

The HIS21016 Source Module - This module is the GETCITY subroutine. It contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine

CNTCITY - CNTCITY subroutine

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The GETCITY Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of GETCITY by automatic call when link-editing. It contains the HIS21016 source module.

The CNTCITY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21018	Assembler	CNTCITY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CNTCITY	HIS.SUBRTN4	CNTCITY subroutine

The HIS21018 Source Module - This module is the CNTCITY subroutine. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The CNTCITY Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of CNTCITY by automatic call when link-editing. It contains the HIS21018 source module.

The COORDINATE-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21020	PL/I	COORDINATE-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21020	PLISTART	HIS.REL4PT0	COORDINATE-TABLE

The HIS21020 Source Module - This module is the mainline program of COORDINATE-TABLE. It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETNEW,SETHDGS,SETINST,DUMP - PRINT
subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
TABLWR,TABLWRI,TABLWRC - TABLWR subroutine

The HIS21020 Load Module - The COORDINATE-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21020	COORDINATE-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-PROJECT-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21030	PL/I	LIST-PROJECT-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21030	PLISTART	HIS.REL4PT0	LIST-PROJECT-TABLE

The HIS21030 Source Module - This module is the mainline program of LIST-PROJECT-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDG,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21030 Load Module - The LIST-PROJECT-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21030	LIST-PROJECT-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-PROJECT-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21031	PL/I	UPDATE-PROJECT-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21031	PLISTART	HIS.REL4PT0	UPDATE-PROJECT-TABLE

The HIS21031 Source Module - This module is the mainline program of UPDATE-PROJECT-TABLE. It contains the following external references:

PRINTER,PRINT,SETINST,DUMP - PRINT subroutine

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

TABLWR,TABLWRI,TABLWRC - TABLWR subroutine

The HIS21031 Load Module - The UPDATE-PROJECT-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21031	UPDATE-PROJECT-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The INPROJ Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21032	PL/I	INPROJ subroutine

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
INPROJ	---	HIS.SUBRTN4	INPROJ subroutine

The HIS21032 Source Module - This module is the INPROJ subroutine. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The INPROJ Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of INPROJ by automatic call when link-editing. It contains the HIS21032 source module.

The CVTPROJ Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21033	Assembler	CVTPROJ subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CVTPROJ	HIS.SUBRTN4	CVTPROJ subroutine

The HIS21033 Source Module - This module is the CVTPROJ subroutine. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The CVTPROJ Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of CVTPROJ by automatic call when link-editing. It contains the HIS21033 source module.

The LIST-SURFACE-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21040	PL/I	LIST-SURFACE-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21040	PLISTART	HIS.REL4PT0	LIST-SURFACE-TABLE

The HIS21040 Source Module - This module is the mainline program of LIST-SURFACE-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDG,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21040 Load Module - The LIST-SURFACE-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21040	LIST-SURFACE-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-SURFACE-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21041	PL/I	UPDATE-SURFACE-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21041	PLISTART	HIS.REL4PT0	UPDATE-SURFACE-TABLE

The HIS21041 Source Module - This module is the mainline program of UPDATE-SURFACE-TABLE. It contains the following external references:

PRINTER,PRINT,SETINST,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
 TABLWR,TABLWRI,TABLWRC - TABLWR subroutine

The HIS21041 Load Module - The UPDATE-SURFACE-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21041	UPDATE-SURFACE-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CVTSURF Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21042	Assembler	CVTSURF subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CVTSURF	HIS.SUBRTN4	CVTSURF subroutine

The HIS21042 Source Module - This module is the CVTSURF subroutine. It contains the following external references:

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The CVTSURF Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of CVTSURF by automatic call when link-editing. It contains the HIS21042 source module.

The LIST-SUFF-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21050	PL/I	LIST-SUFF-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21050	PLISTART	HIS.REL4PT0	LIST-SUFF-TABLE

The HIS21050 Source Module - This module is the mainline program of LIST-SUFF-TABLE. It contains the following external references:

PRINTER,PRINT,PRINTA,SETHDG,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21050 Load Module - The LIST-SUFF-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21050	LIST-SUFF-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-SUFF-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21051	PL/I	UPDATE-SUFF-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21051	PLISTART	HIS.REL4PT0	UPDATE-SUFF-TABLE

The HIS21051 Source Module - This module is the mainline program of UPDATE-SUFF-TABLE. It contains the following external references:

PRINTER,PRINT,SETINST,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
 TABLWR,TABLWRI,TABLWRC - TABLWR subroutine

The HIS21051 Load Module - The UPDATE-SUFF-TABLE load module contains the following source modules:

<u>Source</u> <u>Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21051	UPDATE-SUFF-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The GETSUFF Subroutine

<u>Source</u> <u>Module</u>	<u>Language</u>	<u>Function</u>
HIS21052	PL/I	GETSUFF subroutine

<u>Load</u> <u>Module</u>	<u>Library</u>	<u>Function</u>
GETSUFF	HIS.SUBRTN4	GETSUFF subroutine

The HIS21052 Source Module - This module is the GETSUFF subroutine. It contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The GETSUFF Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of GETSUFF by automatic call when link-editing. It contains the HIS21052 source module.

The LIST-FILE-TABLE Program

<u>Source</u> <u>Module</u>	<u>Language</u>	<u>Function</u>
HIS21060	Assembler	LIST-FILE-TABLE mainline

<u>Load</u> <u>Module</u>	<u>Entry</u> <u>Point</u>	<u>Library</u>	<u>Function</u>
HIS21060	FTLIST	HIS.REL4PT0	LIST-FILE-TABLE

The HIS21060 Source Module - This module is the mainline program of LIST-FILE-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDG,SETINST - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
 FTSUM - FTSUM subroutine

The HIS21060 Load Module - The LIST-FILE-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21060	LIST-FILE-TABLE mainline
HIS21063	FTSUM subroutine

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-FILE-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21061	PL/I	UPDATE-FILE-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21061	PLISTART	HIS.REL4PT0	UPDATE-FILE-TABLE

The HIS21061 Source Module - This module is the mainline program of UPDATE-FILE-TABLE. It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETNEW,SETHDGS,SETINST,DUMP - PRINT
 subroutine
 BPAMRD,BPAMRDI,BPAMRDC - BPAMRD subroutine
 BPAMWR,BPAMWRI,BPAMWRC - BPAMWR subroutine
 DUMPDD - DUMPDD subroutine

The HIS21061 Load Module - The UPDATE-FILE-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20052	BPAMRD interface
* HIS20054	BPAMWR interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
HIS21061	UPDATE-FILE-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The BUILD-FILE-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21062	Assembler	BUILD-FILE-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21062	PLISTART	HIS.REL4PT0	BUILD-FILE-TABLE

The HIS21062 Source Module - This module is the mainline program of BUILD-FILE-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDG,SETINST - PRINT subroutine
 FTLOAD - FTLOAD subroutine

The HIS21062 Load Module - The BUILD-FILE-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21062	BUILD-FILE-TABLE mainline
HIS21063	FTSUM subroutine
HIS21064	FTLOAD subroutine

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The FTSUM Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21063	Assembler	FTSUM subroutine

The HIS21063 Source Module - This module is the FTSUM subroutine. It contains the following external references:

PRINT,PRINTA - PRINT subroutine

The FTLOAD Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21064	Assembler	FTLOAD subroutine

The HIS21064 Source Module - This module is the FTLOAD subroutine. It contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine

TABLWR,TABLWRI,TABLRWC - TABLWR subroutine

FTSUM - FTSUM subroutine

The REWRITE Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21065	Assembler	REWRITE subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
REWRITE	HIS.SUBRTN4	REWRITE subroutine

The HIS21065 Source Module - This module is the REWRITE subroutine. It contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The REWRITE Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of REWRITE by automatic call when link-editing. It contains the HIS21065 source module.

The PASSPARM-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21070	PL/I	PASSPARM-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21070	PLISTART	HIS.REL4PT0	PASSPARM-TABLE

The HIS21070 Source Module - This module is the mainline program of PASSPARM-TABLE. It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETHDG,SETINST,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
 TABLWR,TABLWRI,TABLWRC - TABLWR subroutine
 DUMPDD - DUMPDD subroutine

The HIS21070 Load Module - The PASSPARM-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
HIS21070	PASSPARM-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-PARM-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS21080	PL/I	LIST-PARM-TABLE mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21080	PLISTART	HIS.REL4PT0	LIST-PARM-TABLE

The HIS21080 Source Module - This module is the LIST-PARM-TABLE mainline program. It contains the following external references:

PRINTER,PRINT,SETHDGS - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21080 Load Module - The LIST-PARM-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21080	LIST-PARM-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-PARM-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS21081	PL/I	UPDATE-PARM-TABLE mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21081	PLISTART	HIS.REL4PT0	UPDATE-PARM-TABLE

The HIS21081 Source Module - This module is the mainline program of UPDATE-PARM-TABLE. It contains the following external references:

PRINTER,PRINT,SETPOS,SETHDGS,SETINST - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
TABLWR,TABLWRI,TABLWRC - TABLWR subroutine

The HIS21081 Load Module - The UPDATE-PARM-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21081	UPDATE-PARM-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-LOADMOD-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21090	PL/I	LIST-LOADMOD-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21090	PLISTART	HIS.REL4PT0	LIST-LOADMOD-TABLE

The HIS21090 Source Module - This module is the mainline program of LIST-LOADMOD-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDGS,SETINST,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21090 Load Module - The LIST-LOADMOD-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21090	LIST-LOADMOD-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-SOURCE-XREF Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21091	PL/I	LIST-SOURCE-XREF mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21091	PLISTART	HIS.REL4PT0	LIST-SOURCE-XREF

The HIS21091 Source Module - This module is the mainline program of LIST-SOURCE-XREF. It contains the following external references:

PRINTER,PRINT,SETPOSA,SETHDGS,SETINST,DUMP - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21091 Load Module - The LIST-SOURCE-XREF load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21091	LIST-SOURCE-XREF mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-PTW-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21110	PL/I	LIST-PTW-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21110	PLISTART	HIS.REL4PT0	LIST-PTW-TABLE

The HIS21110 Source Module - This module is the mainline program of LIST-PTW-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDG,DUMP - PRINT subroutine
INPTW - INPTW subroutine

The HIS21110 Load Module - The LIST-PTW-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20051	FETCH interface
* HIS20053	TABLRD interface
HIS21110	LIST-PTW-TABLE mainline
* HIS21112	INPTW subroutine
* HIS30001	RLGRDQ interface
* HIS30100	COINKEY subroutine

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The INPTW Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21112	Assembler	INPTW subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
INPTW	HIS.SUBRTN4	INPTW subroutine

The HIS21112 Source Module - This module is the INPTW subroutine. It contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
RLGRDQ,RLGRDQI,RLGRDQT,RLGRDQX,RLGRDQC - RLGRDQ subroutine
COINKEY - COINKEY subroutine

The INPTW Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of INPTW by automatic call when link-editing. It contains the HIS21112 source module.

The TESTPTW Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21113	Assembler	TESTPTW subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
TESTPTW	HIS.SUBRTN4	TESTPTW subroutine

The HIS21113 Source Module - This module is the TESTPTW subroutine. It contains the following external references:

PRINTER,PRINT - PRINT subroutine
 INPTW - INPTW subroutine
 POINTQ,POINTQO,POINTQK - POINTQ subroutine

The TESTPTW Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of TESTPTW by automatic call when link-editing. It contains the HIS21113 source module.

The EQUIV-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21130	PL/I	EQUIV-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21130	PLISTART	HIS.REL4PT0	EQUIV-TABLE

The HIS21130 Source Module - This module is the mainline program of EQUIV-TABLE. It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETHDG,SETINST,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
 TABLWR,TABLWRI,TABLWRC - TABLWR subroutine
 DUMPDD - DUMPDD subroutine

The HIS21130 Load Module - The EQUIV-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
HIS21130	EQUIV-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-COUNTY-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21140	PL/I	LIST-COUNTY-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21140	PLISTART	HIS.REL4PT0	LIST-COUNTY-TABLE

The HIS21140 Source Module - This module is the mainline program of LIST-COUNTY-TABLE. It contains the following external references:

PRINTER,PRINT,SETHDG,DUMP - PRINT subroutine
 TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS21140 Load Module - The LIST-COUNTY-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS21140	LIST-COUNTY-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-COUNTY-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21141	PL/I	UPDATE-COUNTY-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21141	PLISTART	HIS.REL4PT0	UPDATE-COUNTY-TABLE

The HIS21141 Source Module - This module is the mainline program of UPDATE-COUNTY-TABLE. It contains the following external references:

PRINTER,PRINT,SETINST,DUMP - PRINT subroutine

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

TABLWR,TABLWRI,TABLWRC - TABLWR subroutine

The HIS21141 Load Module - The UPDATE-COUNTY-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20055	TABLWR interface
* HIS20058	GETLIST subroutine
HIS21141	UPDATE-COUNTY-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The INCNTY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21142	Assembler	INCNTY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
INCNTY	HIS.SUBRTN4	INCNTY subroutine

The HIS21142 Source Module - This module is the INCNTY subroutine. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The INCNTY Load Module - This module is stored in the HIS.SUBRTN4 to allow inclusion of INCNTY by automatic call when link-editing. It contains the HIS21142 source module.

The CVTCNTY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21144	Assembler	CVTCNTY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CVTCNTY	HIS.SUBRTN4	CVTCNTY subroutine

The HIS21144 Source Module - This module is the CVTCNTY subroutine. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The CVTCNTY Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of CVTCNTY by automatic call when link-editing. It contains the HIS21144 source module.

The GETCNTY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21150	Assembler	GETCNTY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
GETCNTY	HIS.SUBRTN4	GETCNTY subroutine

The HIS21150 Source Module - This module is the GETCNTY subroutine. It contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
CNTCNTY - CNTCNTY subroutine

The GETCNTY Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of GETCNTY by automatic call when link-editing. It contains the HIS21150 source module.

The CNTCNTY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21152	Assembler	CNTCNTY subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CNTCNTY	HIS.SUBRTN4	CNTCNTY subroutine

The HIS21152 Source Module - This module is the CNTCNTY subroutine. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The CNTCNTY Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of CNTCNTY by automatic call when link-editing. It contains the HIS21152 source module.

The LOADPDS Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21900	PL/I	LOADPDS mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21900	PLISTART	HIS.REL4PT0	LOADPDS

The HIS21900 Source Module - This module is the mainline program of LOADPDS.

It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETNEW,SETHDGS,DUMP - PRINT subroutine
BPAMWR,BPAMWRI,BPAMWRC - BPAMWR subroutine
CHECKDD - CHECKDD subroutine

The HIS21900 Load Module - The LOADPDS load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20054	BPAMWR interface
* HIS20056	CHECKDD interface
* HIS20058	GETLIST subroutine
HIS21900	LOADPDS mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LISTPDS Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21901	PL/I	LISTPDS mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21901	PLISTART	HIS.REL4PT0	LISTPDS

The HIS21901 Source Module - This module is the mainline program of LISTPDS.

It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETNEW,SETHDGS,DUMP - PRINT subroutine
BPAMRD,BPAMRDI,BPAMRDC - BPAMRD subroutine
CHECKDD - CHECKDD subroutine

The HIS21901 Load Module - The LISTPDS load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20052	BPAMRD interface
* HIS20056	CHECKDD interface
* HIS20058	GETLIST subroutine
HIS21901	LISTPDS mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDPDS Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21902	PL/I	UPDPDS mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21902	PLISTART	HIS.REL4PT0	UPDPDS

The HIS21902 Source Module - This module is the mainline program of UPDPDS.
It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETNEW, SETHDGS, DUMP - PRINT subroutine
 BPAMRD, BPAMRDI, BPAMRDC - BPAMRD subroutine
 BPAMWR, BPAMWRI, BPAMWRC - BPAMWR subroutine
 DUMPDD - DUMPDD subroutine

The HIS21902 Load Module - The UPDPDS load module contains the following
source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20052	BPAMRD interface
* HIS20054	BPAMWR interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
HIS21902	UPDPDS mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The MODPDS Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS21903	Assembler	MODPDS mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS21903	MODPDS	HIS.REL4PT0	MODPDS

The HIS21903 Source Module - This module is the mainline program of MODPDS.
It contains the following external references:

PRINTER,PRINT,SETHDGS - PRINT subroutine
CHECKDD - CHECKDD subroutine

The HIS21903 Load Module - The MODPDS load module contains the following
source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20056	CHECKDD interface
* HIS20058	GETLIST subroutine
HIS21903	MODPDS mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.



SELECT SUBSYSTEM

The select subsystem is also known as the HIS22 subsystem. The names of source modules and load modules of the select subsystem have the format HIS22xxx, where "xxx" is a 3-digit number.

The Select Concept

The select subsystem has been added to the Highway Information System to provide greater flexibility than in previous releases. It allows the user to specify criteria for selecting records for processing by a program. HIS does not provide a generalized report-producer, but the select capability provides users with enough flexibility to locate and summarize almost any piece of data in the HIS files.

Methods of File Access

When an application program is written, it can be designed to interact with a file in many different ways. This section describes three methods of file access, all of which are used in the Highway Information System.

Direct File Access - Figure 12-1 illustrates direct file access. The application program utilizes the standard input/output facilities available in the language in which the program is written, such as READ and WRITE statements of PL/I. This method is the simplest method of file access but is also the least flexible. Direct file access is used within HIS in the following situations:

1. For reading data cards.
2. For reading and writing temporary scratch files.
3. For processing simple files where high-level functions are not needed, such as the grid table file.
4. For loading and updating files.

Direct file access is inflexible for the following reasons:

1. If any alterations are made in the file's record format or file organization, the application program must be altered.
2. Any high-level functions (such as the select capability) must be designed into each application program.

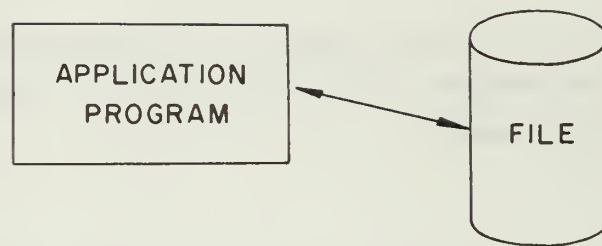


FIG. 12-1. DIRECT FILE ACCESS.

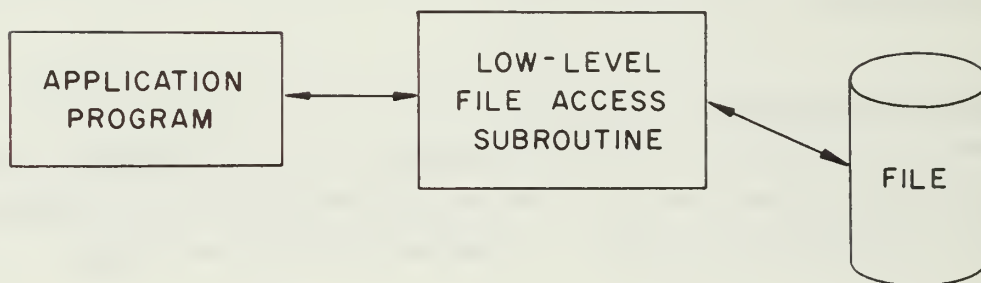


FIG. 12-2. INDIRECT FILE ACCESS VIA A LOW-LEVEL ACCESS SUBROUTINE.

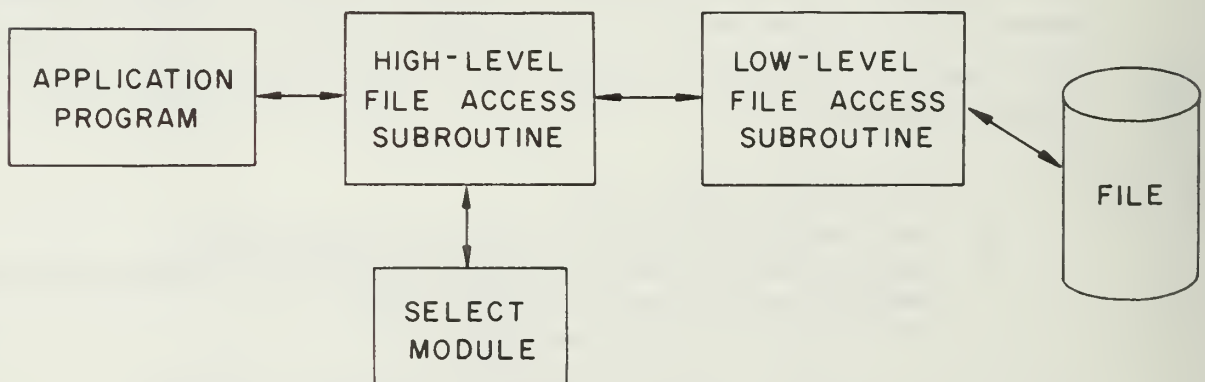


FIG. 12-3. INDIRECT FILE ACCESS WITH HIGH-LEVEL FUNCTIONS.

Indirect File Access Via Low-Level Access Subroutine - Figure 12-2 illustrates this type of indirect file access. The input/output statements of the application program are replaced by subroutine calls to a file access subroutine. The subroutine considered in this section is a "low-level" subroutine which provides few if any functions other than simple file access. This type of access is utilized within HIS by some programs for performing the following functions:

1. For reading data cards.
2. For reading and writing temporary scratch files.
3. For processing files in situations where high-level functions are not needed, such as by COPY and CREATE programs.
4. For loading and updating files.
5. For producing certain reports and summaries where the select functions would have little if any benefit.

This method of access is superior to direct file access in the following ways:

1. If a file's record format or file organization is changed, the file access subroutine is frequently the only program that needs to be altered - the application programs can remain untouched.
2. Certain functions required by many application programs (such as reading a range of records based on key) can be implemented into the subroutine itself, thus simplifying the work needed when additional application programs are written.

Indirect File Access Via High-Level Access Subroutine - This method of access is similar to indirect access via a low-level subroutine, except that the file access subroutine is more "intelligent." Figure 12-3 illustrates the linkage used in many of the HIS summary and listing programs. The low-level subroutine is retained to free the high-level subroutine from actual direct file accesses. The high-level routine contains linkages to the select module. The high-level routine also contains linkages to the HIS control blocks and can determine options specified by the user on his command. For example, the high-level accident file subroutine (ACCRD) automatically processes many options from the command (such as SELECT-DD, START-DATE, and END-DATE) with no intervention by the application program. The existence of the high-level subroutine greatly reduces the effort needed when writing new application programs and when modifying files.

Flow of Control in the Select Module

The select module is shown as a single block in Figure 12-3. It actually consists of a set of 10 source modules as shown in Figure 12-4. The mainline program of the module is the SELTEST routine. The high-level file access routines perform calls to entry points of SELTEST and never call any of the other select routines directly. Calling sequences to SELTEST are provided in the publication Highway Information System Release 4.0: Record Formats and Subroutines.

SELTEST has three entry points: SELTESTI, SELTEST, and SELTESTC. SELTESTI is called once to initialize the routines. SELTEST is called once for each record to determine whether the record should be processed. SELTESTC is called upon termination to close any files that are open.

When SELTESTI is called, the following functions are performed:

1. The file identification number is retrieved from the select table corresponding to the name passed by the high-level file access routine (if the name passed is ACC, the file ID is zero).
2. SELREAD is called to read the user's select statement.

SELREAD makes use of the routines SELPARSE, SELELEMT, SELVERFY, and SELWRITE in order to read the select statement. SELPARSE is the "parse" routine - it reads the statement and breaks it down into its components. SELELEMT accesses the select tables in order to look up information about the data elements the user has coded in his select statement. SELVERFY verifies that the select statement does not contain gross errors, and also performs any read-time special processing that is required. SELWRITE prepares a "select control block" that contains all of the information needed by SELTEST to perform the selection operations.

When SELTEST is called, any necessary tests are performed to determine whether the record passed to SELTEST should be processed. Most of the necessary code for performing the tests are located in the SELTEST module, but the modules SELTESTX, SELOPT, SELGMIN, and SELGACC contain additional code. SELTESTX is called by SELTEST to perform each test. SELOPT is called whenever execution-time special processing is needed. SELGMIN is called whenever a minor file must be read. SELGACC is called when processing accident data when one of the accident files needs to be read.

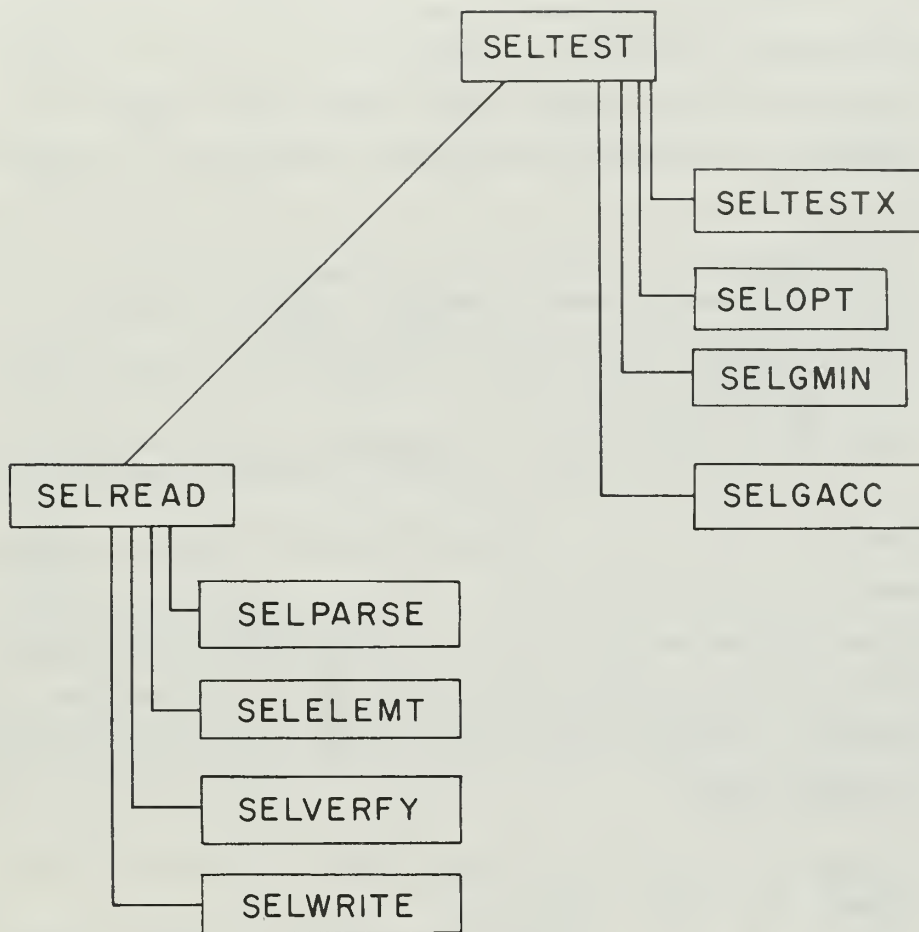


FIG. 12-4. FLOW OF CONTROL BETWEEN SELECT ROUTINES.

The Select Control Block

The select control block is built when a select statement is read. It contains all of the information needed during execution to determine which records should be processed. The select control block is built by the module SELWRITE.

In order to test the contents of a data element against some constant or against another data element, the following information is needed about the data element:

1. The file in which the data element is stored.
2. The format in which the data element is stored.
3. The field length of the data element.
4. (Decimal fields only) The number of digits to the right of the decimal point.
5. The location of the data element in the record.
6. An indicator whether special processing needs to be performed.

The user provides all of this information when he codes the complete name of a data element (e.g., RLG.YEAR-BUILT). The file name is part of the complete name. The remaining information is obtained by table lookup in the select tables.

The user specifies files through the use of a 3-character code name such as RLG. Internally, the select routines utilize a numeric file ID number as shown in the following table:

<u>Code</u> <u>Name</u>	<u>ID</u>	<u>Bit</u>	<u>File name</u>
ACC	0	---	Accident (this name is used internally only)
RLG	1	0	Roadlog
TRM	2	1	True mileage
TRF	3	2	Traffic
DAC	4	3	Accident detail
VAC	5	4	Accident vehicle
ACD	6	5	Accident directory
SUF	7	6	Sufficiency
BDG	8	7	Bridge
RRX	9	8	Railroad
SKD	10	9	Skid
USN	11	10	Urban sign inventory
SGN	12	11	Rural sign inventory

The code name ACC is passed to SELTESTI by ACCRD to identify the accident high-level routine (a large amount of special code is required in the select module to handle the accident files). This code name cannot be used within a select statement.

The select control block begins with a doubleword (8 bytes or 64 bits) that identifies all of the files referred to in the select statement. Each file is assigned a bit within this doubleword which is set to '1'B if the file was referred to or to '0'B if the file was not referred to. The bit number assigned to the file is shown in the above table, and is equal to the file ID minus 1.

The remainder of the select control block is variable format. The length of the block is 512 bytes multiplied by the value specified in the SELECT-SIZE parameter (SELECT-SIZE defaults to 1). The number of relationships that can be stored in a 512-byte block is variable and depends upon the field length of the data elements involved and upon how many parenthesis are coded in the statement.

The select control block utilizes hexadecimal codes to indicate the various items specified in the select statement. The following items require one byte:

X'00'	Indicates end-of-statement
X'01'	*OR*
X'02'	*AND*
X'03'	Left parenthesis
X'04'	Right parenthesis

A relationship requires 10 or more bytes. The first byte indicates the number of bytes used by the relationship. Because this is always at least 10, this byte is not confused with the above one-byte codes. A relationship that involves a comparison with a constant (as in RLG.YEAR-BUILT *EQ* 66) has the following format:

<u>Byte</u>	<u>Length</u>	<u>Format</u>	<u>Contents</u>
1	1	Binary	Length of relationship
2	1	Binary	File ID of data element
3-4	2	Binary	Location of data element in record
5	1	Binary	Field length of data element
6	1	Char	Format of data element
7-8	2	Decimal	Option code for special processing
9	1	Binary	Indicators
10-?	?	?	Constant

The indicators in byte 9 contain the following:

Bit 0: Contains B'0'
 Bits 1-4: Unused
 Bits 5-7:

B'000' - *EQ*	B'011' - *LT*
B'001' - *NE*	B'100' - *GE*
B'010' - *LE*	B'101' - *GT*

A relationship that involves a comparison with two data elements (as in RLG.YEAR-BUILT *EQ* RLG.YEAR-IMPROVED) has the following format:

<u>Bytes</u>	<u>Length</u>	<u>Format</u>	<u>Contents</u>
1-8	8		Same as above format
9	1	Binary	Indicators
10-16	7		Same as bytes 2-8, describe second data element

The indicators in byte 9 are the same as byte 9 of the above format except that bit 0 contains B'1'.

Values stored in the control block are not identical to the values stored in the select tables. Differences are:

1. Location in record: In the select tables, location is specified based on calling the first byte of the record byte # 1. This value is decremented by 1 before storage in the control block to reflect an offset from the beginning of the record.
2. Field length: The field length is set up in the format used in the IBM 360/370 instruction format. For character fields, the value stored is the length in characters minus 1. For decimal fields, the value stored is two 4-bit values, each of which is (x/2), where "x" is the length in digits. The value is truncated if necessary. For example, a 35-character field has a length field of 34 (X'22'). A five-digit decimal field has a length field of X'22'.

The following is an example of a select control block. The user submits the following select statement:

```
RLG.YEAR-BUILT *EQ* RLG.YEAR-IMPROVED *AND*
(RLG.YEAR-BUILT *EQ* 68 *OR* RLG.YEAR-BUILT *EQ* 69)
```

The first part of the control block is a doubleword that indicates the files specified. The only file referred to is the roadlog file, which is assigned to bit 0. Hence, the doubleword is X'8000000000000000'. The next part of the block describes the first relationship:

X'10'	Length of relationship - 16 bytes
X'01'	File ID - roadlog file
X'0055'	Location of year built - offset X'55'
X'11'	Field length
C'P'	Format - packed decimal
P'000'	Option code - no special processing
X'80'	Equal to

X'01	File ID - roadlog file
X'0057'	Location of year improved - offset X'57'
X'11'	Field length
C'P'	Format - packed decimal
P'000'	Option code - no special processing.

Next come the following bytes:

X'02'	*AND*
X'03'	Left parenthesis

Then comes the second relationship:

X'0B'	Length of relationship
X'01005511',C'P',P'000'	Describes RLG.YEAR-BUILT
X'00'	*EQ*
P'068'	Constant value for comparison

Next comes the following byte:

X'01'	*OR*
-------	------

Then comes the last relationship, which is identical to the second relationship except that the constant value is P'069'. The last relationship is followed by these bytes:

X'04'	Right parenthesis
X'00'	End of statement

In summary, the entire control block contains the following in hexadecimal:

0-7	000-007	X'8000000000000000'	
8-15	008-00F	X'1001005511D7000C'	RLG.YEAR-BUILT
16-23	010-017	X'8001005711D7000C'	*EQ* RLG.YEAR-IMPROVED
24-31	018-01F	X'02030B010055D700'	*AND* (RLG.YEAR-BUILT
32-39	020-027	X'0C00068C010B0100'	*EQ* 68 *OR* RLG.YEAR-BUILT
40-47	028-02F	X'5511D7000C00069C'	*EQ* 69
48-55	030-037	X'0400.....') end

The contents of the block following the end-of-statement indicator are unpredictable.

Modules That Read Select Statements

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS22010	Assembler	SELREAD subroutine
HIS22011	Assembler	SELPARSE subroutine
HIS22012	Assembler	SELELEMT subroutine
HIS22013	Assembler	SELVERFY subroutine
HIS22014	Assembler	SELWRITE subroutine

The HIS22010 Source Module - This module is the SELREAD subroutine. It controls the operation of SELPARSE, SELELEMT, SELVERFY, and SELWRITE to read and decode a select statement. It also allocates storage for the select control block. When SELREAD is called by SELTEST, register 1 contains the address of a 6-byte area. Upon return, this area contains the following information:

<u>Bytes</u>	<u>Contents</u>
1-4	Address of select control block
5-6	Length of select control block in bytes

SELREAD contains the following external references:

PRINTER,PRINT,SETNEW,SETINST,DUMP - PRINT subroutine
SELPARSE - SELPARSE subroutine
SELELEMT - SELELEMT subroutine
SELVERFY - SELVERFY subroutine
SELWRITE,SELWRITI - SELWRITE subroutine

The HIS22011 Source Module - This module is the SELPARSE subroutine. It reads the user's select statement and parses it (i.e., breaks it down into its components). Linkage to SELPARSE is via the following registers:

2 Contains address of PRINTER
3 Contains address of HIS instruction
5 Contains address of area for input item
15 Used for return code

Return codes passed in register 15 are:

- 0 End of file
- 4 Data element name (e.g., RLG.YEAR-BUILT)
- 8 Character constant (e.g., 'NE')
- 12 Decimal constant (e.g., 51 or +5.38)
- 16 Date constant (e.g., 1/1/76)
- 20 Comparison symbol (e.g., *EQ*)
- 24 Or/and symbol (*OR* or *AND*)
- 28 Left parenthesis
- 32 Right parenthesis

The information stored by SELPARSE at the address specified in register 5 depends upon the above return code:

- 0 Nothing stored
- 4 Data element name stored left-justified in up to 24 bytes
- 8 Constant stored left-justified in up to 35 bytes (quotes are removed)
- 12 Decimal constant stored in 8 bytes in packed decimal format. The ninth byte contains a packed decimal value that specifies the number of digits to the right of the decimal point.
- 16 Date constant stored as three 2-digit packed decimal values (month, day, year).
- 20 One byte stored:

X'00' - *EQ*	X'03' - *LT*
X'01' - *NE*	X'04' - *GE*
X'02' - *LE*	X'05' - *GT*
- 24 One byte stored:

X'00' - *OR*	
X'01' - *AND*	
- 28 Nothing stored
- 32 Nothing stored

SELPARSE contains the following external references:

- PRINT,DUMP - PRINT subroutine
- DUMPDD - DUMPDD subroutine
- DATEDIT - DATEDIT subroutine

The HIS22012 Source Module - This module is the SELELEMT subroutine. It accesses the select tables to retrieve information about data elements. Linkage to SELELEMT is via the following registers:

- 2 Contains address of PRINTER
- 3 Contains address of HIS instruction
- 4 Contains address of 11-character area
- 5 Contains address of 24-character data element name
- 15 Used for return code

Upon return from SELELEMT, register 15 contains 0. SELELEMT stores information in the area pointed to by register 4 in the following format:

<u>Bytes</u>	<u>Format</u>	<u>Contents</u>
1-2	H	File identification
3-4	PL2	Option code
5	CL1	Format
6-7	PL2	Length
8-9	PL2	Digits to right of decimal point
10-11	PL2	Location in record

The name passed to SELELEMT via register 5 is in the format xxx.name, where "xxx" is a 3-character file identifier (as in RLG.YEAR-BUILT). The member name of the select table is formed by adding the characters SELCT to the file name (as in RLGSELCT). The first record of the table contains the 4-digit file identification, which is converted to H format and stored in the return area. The member is then searched for the specified data element, and the remaining data items returned by SELELEMT are retrieved from the located record. SELELEMT contains the following external references:

PRINT,DUMP - PRINT subroutine

TABLRD,TABLRDI - TABLRD subroutine

The HIS22013 Source Module - This module is the SELVERFY subroutine. It performs verification functions to components of the select statement and also performs several additional functions. SELVERFY performs any operations required by a read-time option code. It also normalizes decimal constants so that the constant has the same number of digits to the right of the decimal point as does the data element in the file. Linkage to SELVERFY is via the following registers:

- 2 Contains address of PRINTER
- 3 Contains address of HIS instruction
- 6 Contains address of SELVERFY control block

The SELVERFY control block can have either of two formats. One form is used for relationships that compare a data element to a constant as in the relationship RLG.YEAR-BUILT *EQ* 52. This format is:

<u>Columns</u>	<u>Format</u>	<u>Contents</u>
1	XL1	X'ØØ'
2-25	CL24	Data element name
26-27	H	File identification
28-29	PL2	Option code
3Ø	CL1	Format code of data element
31-32	PL2	Length code of data element
33-34	PL2	Number of digits to right of decimal point
35-36	PL2	Location in record of data element
37	CL1	Format code of constant
38	PL1	Number of digits to right of decimal point (constant)
39-73	CL35	Constant, left-justified

When SELVERFY is called and passed a block of this format, the following operations are performed:

1. Process option code if one is present.
2. Ensure that data element and constant have same format.
3. If decimal, normalize constant to format of data element.

The second format of the SELVERFY control block is used when two data elements are compared, as in RLG.YEAR-BUILT *EQ* RLG.YEAR-IMPROVED. This format is:

<u>Columns</u>	<u>Format</u>	<u>Contents</u>
1	XL1	X'Ø1'
2-36		Same as 2-36 in above format (first data element)
37-38		Unused
39-73		Same as 2Ø36 in above format (second data element)

When SELVERFY is called and passed a block of this format, the following operations are performed:

1. Ensure that both data elements have identical format.
2. If decimal, ensure that both data elements have the same number of digits to right of decimal point.

Option codes that are processed by SELVERFY are:

- ØØ1 County number - If county name coded, convert name to alphabetic county number.
- ØØ2 County number - same as ØØ1 except registration county number.

- 003 City number - If city name coded, convert to city number.
- 400 Project number - If project class coded, convert to administration code.

SELVERFY contains the following external references:

PRINT,DUMP - PRINT subroutine
 CVTCITY - CVTCITY subroutine
 CVCNTY - CVCNTY subroutine
 CVTPROJ - CVTPROJ subroutine

The HIS22014 Source Module - This module is the SELWRITE subroutine. It builds the select control block. The SELWRITI entry point is called once during initialization. Upon entry to SELWRITI, register 1 contains the address of a 6-byte area:

Bytes	Contents
1-4	Address of select control block
5-6	Length of select control block

SELWRITE is then called once for each portion of the select statement. For a one-byte field, register 1 contains one of these values upon entry:

0	End-of-block
1	*OR*
2	*AND*
3	Left parenthesis
4	Right parenthesis

For relationships, a control block is passed to SELWRITE via register 1. The format of this block is identical to the SELVERFY control block above preceded by a single byte:

X'00' - *EQ*	X'03' - *LT*
X'01' - *NE*	X'04' - *GE*
X'02' - *LE*	X'05' - *GT*

SELWRITE has the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine

Modules That Perform Selection

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS220000	Assembler	SELTEST subroutine
HIS220200	Assembler	SELTESTX subroutine
HIS220210	Assembler	SELOPT subroutine
HIS220300	Assembler	SELGMIN subroutine
HIS220310	Assembler	SELGACC subroutine

The HIS220000 Source Module - This module is the SELTEST subroutine. It is the mainline program of the select module. It contains the following external references:

SELTESTX - SELTESTX subroutine
SELGACC,SELGACCN,SELGACCC - SELGACC subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine
SELREAD - SELREAD subroutine
SELGMIN,SELGMINC - SELGMIN subroutine
SELOPT - SELOPT subroutine
PRINTER,PRINT,DUMP - PRINT subroutine

The HIS220200 Source Module - This module is the SELTESTX subroutine. It performs any comparisons that are required. When called, the following control block is passed following standard conventions via register 1:

<u>Bytes</u>	<u>Format</u>	<u>Contents</u>
1-4	A	Address of first variable
5-8	A	Address of second variable
9	XL1	Length portion of instruction
10	CL1	Format (C=character,P=packed,D=date)
11	XL1	Type of test (0=*EQ*,1=*NE*,2=*LE*,3=*LT*,4=*GE*,5=*GT*)
12	CL1	Return code (Y=yes,N=no)

SELTESTX contains no external references.

The HIS22021 Source Module - This module is the SELOPT subroutine. It performs any necessary execution-time special processing. When called, the following control block is passed via standard conventions through register 1:

<u>Bytes</u>	<u>Format</u>	<u>Contents</u>
1-4	A	Address of data element
5-8	A	Return address
9	XL1	File ID
10-11	PL2	Option code

SELOPT contains the following external references:

CVTSURF - CVTSURF subroutine
CVTPROJ - CVTPROJ subroutine
INCITY - INCITY subroutine
INCNTY - INCNTY subroutine
PRINTER,PRINT,DUMP - PRINT subroutine

Options codes that SELOPT recognizes are:

400 Project class - The project class is retrieved from the project number and the corresponding administration code is derived.

600 Population - The city number is retrieved and the corresponding population code is derived.

601 Financial district - The county number is retrieved and the corresponding financial district is derived.

602 Patrol division - The county number is retrieved and the corresponding patrol division is derived.

603 Surface type class - The surface type is retrieved and the corresponding surface type class is derived.

The HIS22030 Source Module - This module is the SELGMIN subroutine. It reads minor files when a file access is required. When SELGMIN is called, the following control block is passed via register 1 following standard conventions:

<u>Bytes</u>	<u>Format</u>	<u>Contents</u>
1-4	A	Address of major record
5-8	A	For storing address of minor record
9	XL1	File ID - major file
10	XL1	File ID - minor file

Upon completion, SELGMINC is called to close any files that are open. SELGMIN contains the following external references:

RLGRDQF,RLGRDQT,RLGRDQL,RLGRDQ,RLGRDQC,RLGRDQ1,RLGRDQ2 - RLGRDQ
subroutine

TRFRDQF,TRFRDQX,TRFRDQ,TRFRDQC,TRFRDQ1,TRFRDQ2 - TRFRDQ subroutine

PRINTER,PRINT,DUMP - PRINT subroutine

The HIS22031 Source Module - This module is the SELGACC subroutine. It accesses any necessary data from the accident files when needed (this subroutine can only be called when processing the file ACC). When SELGACC is called, two control blocks are passed via register 1 using standard conventions. The first control block provides the addresses of accident records:

<u>Bytes</u>	<u>Format</u>	<u>Contents</u>
1-4	A	Address of directory record
5-8	A	Address of detail record
9-12	A	Address of vehicle array
13-14	H	Number of records in vehicle array

Each address field contains a null value (x'ff000000') when the corresponding file has not been read. The second control block provides a means of returning a record's address:

<u>Bytes</u>	<u>Format</u>	<u>Contents</u>
1-4	A	For returning record's address
5	XL1	File ID (X'04'-DAC,X'05'-VAC)
6	XL1	Last/not-last (X'00'-last,x'01'-not-last)

When reading the vehicle file, the last byte is set to X'01' if the accident has two or more vehicle records. To retrieve the remaining records, call entry point SELGACCN, passing only the second control block. When the last record is returned, byte 6 will contain X'00'. At end-of-job, call entry point SELGACC to close any files that are open. SELGACC contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine
 DACRDB,DACRDBF,DACRDBC - DACRDB subroutine
 VACRDA,VACRDAI,VACRDAC - VACRDA subroutine
 SELGMIN - SELGMIN subroutine

The SELTEST Interface

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS22001	Assembler	SELTEST interface

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
SELTEST	HIS.SUBRTN4	SELTEST interface

The HIS22001 Source Module - This module is the SELTEST interface. It allows the select module to be accessed as a dynamic subroutine. It is linked with the high-level subroutines that call the select module. It contains the following external reference:

FETCH - FETCH subroutine

The SELTEST Load Module - This load module is stored in the HIS.SUBRTN4 library to allow link-editing of the select module by automatic call. It contains the HIS22001 source module.

The Select Load Module

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS22000	SELTESTE	HIS.REL4PT0	Select module

The HIS22000 Load Module - This load module is the select load module. It is constructed as shown earlier in this chapter in figure 12-4. It contains the following source modules:

Source Module	Function
* HIS20050	PRINT interface
* HIS20051	FETCH interface
* HIS20053	TABLRD interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
* HIS20903	DATEDIT subroutine
* HIS21012	INCITY subroutine
* HIS21013	CVTCITY subroutine
* HIS21013	CVTPROJ subroutine
* HIS21042	CVTSURF subroutine
* HIS21142	INCNTY subroutine
* HIS21144	CVTCNTY subroutine
HIS22000	SELTEST subroutine
HIS22010	SELREAD subroutine
HIS22011	SELPARSE subroutine
HIS22012	SELELEMT subroutine
HIS22013	SELVERFY subroutine
HIS22014	SELWRITE subroutine
HIS22020	SELTESTX subroutine
HIS22021	SELOPT subroutine
HIS22030	SELGMIN subroutine
HIS22031	SELGACC subroutine
* HIS30001	RLGRDQ interface
* HIS31001	TRFRDQ interface
* HIS33003	DACRDB interface
* HIS33013	VACRDA interface

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

Error Message Directory

SELECT-01 - SELECT-10	SELPARSE
SELECT-11 - SELECT-20	SELEMENT
SELECT-21 - SELECT-30	SELVERFY
SELECT-51	SELWRITE
SELECT-52	SELREAD
SELECT-91 - SELECT-99	SELTEST
SELECT-100 - SELECT-110	SELGMIN
SELECT-120 - SELECT-130	SELGACC
SELECT-131	SELOPT

Select Statement Logic

The selection logic is designed to eliminate any extraneous tests. As an example, consider the following select statement (rela and relb are relationships):

rela *OR* relb

If for a particular record rela tests as true, there is no need to perform the test called for in relb. Similarly, in the statement:

rela *AND* relb

there is no need to perform relb if rela tests as false. The elimination of these extraneous tests is essential to efficient operation, especially when relb calls for the reading of a minor file.

If parenthesis are not allowed in select statements, the logic for eliminating extraneous tests is simply the following:

1. If a relationship is true and is followed by *OR* or end-of-block, the record is selected.
2. If a relationship is true and is followed by *AND*, perform the next relationship.
3. If a relationship is false and is followed by *OR*, perform the next relationship.
4. If a relationship is false and is followed by *AND*, skip to the relationship following the first *OR* encountered and perform that relationship (if end-of-block is encountered, the record is rejected).
5. If a relationship is false and is followed by end-of-block, the record is rejected.

When parenthesis are allowed, the logic becomes a bit more complicated. In the following discussion, a level is "gained" whenever a left parenthesis is encountered. A level is "lost" whenever a right parenthesis is encountered. Consider a general select statement such as:

((rela *AND* relb *OR* relc) *AND* (reld)) *OR* (rele *OR* relf)

The general rule is:

1. When a test is false, skip to the test followed by *OR* at the same level or a lower level. If end-of-block is reached, reject the record.
2. When a test is true, skip to the test followed by *AND* at the same level or lower. If end-of-block is reached, accept the record.

If rela in the above statement tests as true, relb is performed. However, if rela is false, relb is skipped and relc is performed. If rela and relb are both true, relc is skipped. Note that the redundant parenthesis around reld do not affect this algorithm.

The LIST-SELECT-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS22200	PL/I	LIST-SELECT-TABLE

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS22200	PLISTART	HIS.REL4PT0	LIST-SELECT-TABLE

The HIS22200 Source Module - This module is the mainline program of LIST-SELECT-TABLE. It contains the following external references:

PRINTER,PRINT,SETNEW,SETHDG,SETINST,DUMP - PRINT subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS22200 Load Module - The LIST-SELECT-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS22200	LIST-SELECT-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

CHAPTER 13

SUPERVISORY SOFTWARE

The supervisory software provides a foundation for HIS. This software aids the user in a number of ways:

1. The user can access the system via HIS commands.
2. The need for OS/VSI Job Control Language is minimized.
3. Individual programs can be run in a single job step with some communication between them.
4. A number of functions are included for the formatting of printed output.

The software also aids the programmer in a number of ways:

1. An easy-to-use but powerful subroutine is available for print operations.
2. The user's command is automatically broken down into a format easily used by an application program, providing an easy-to-use method of specifying run-time requirements.
3. The supervisory software incorporates several features that aid in program debugging.
4. The software includes functions for implementing "dynamic" sub-routines.
5. The software includes functions for reading and writing partitioned data sets (libraries).

Flow of Control in HIS

Figure 13-1 illustrates the flow of control within the Highway Information System. Whenever HIS is executed, the EXEC statement specifies PGM=HIS20400. The HIS20400 load module is the header routine. The header checks the PARM parameter of the EXEC statement (if one was specified) and builds a control block for the supervisor based on the options specified. It then loads the supervisor's load module into storage for execution and passes control to it.

When the supervisor is called, it loads the decoder's load module into storage and passes control to it. The decoder reads all of the commands supplied with the run and translates them into the internal "instruction" format. The instructions are written to a scratch file.

When the supervisor regains control from the decoder, it reads and executes each of the instructions prepared by the decoder. For each instruction, the supervisor first executes the initializer program (load module HIS20200) and then the

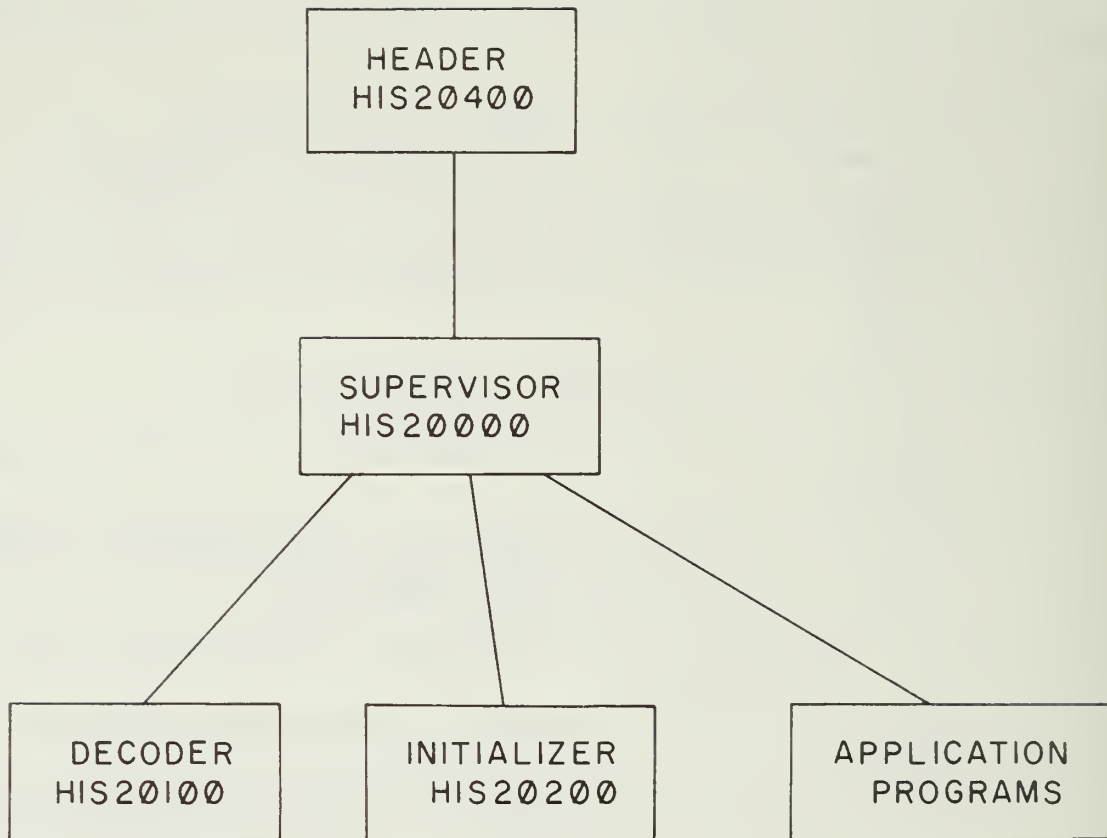


FIG. 13-1. FLOW OF CONTROL IN HIS.

application program. The load module name of the application program is obtained from the instruction.

After all of the instructions have been processed, control is returned to the OS/VSl operating system.

The Header Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS20400	Assembler	Header mainline	
HIS20401	Assembler	GETPARM subroutine	

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS20400	ENTRY	HIS.REL4PT0	Header

The HIS20400 Source Module - This module is the mainline program of the header program. It contains the following external reference:

GETPARM - GETPARM subroutine

The HIS20401 Source Module - This module is the GETPARM subroutine. It is called by the mainline program if a PARM parameter is specified on the EXEC statement. When called, register 1 points to the PARM parameter (standard IBM 370 conventions are followed). Register 12 contains the address of the parameter block. GETPARM decodes the options specified in PARM into the parameter block. If an error exists in the PARM parameter, a user-10 abend is generated. GETPARM contains no external references.

The HIS20400 Load Module - The header load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
HIS20400	Header mainline
HIS20401	GETPARM subroutine

The Parameter Block - The parameter block is the control block that is passed from the header to the supervisor. It has the following format:

<u>Bytes</u>	<u>Length</u>	<u>Format</u>	<u>Contents</u>
1-8	8	CL8	Name of supervisor's load module
9-16	8	CL8	Name of decoder's load module
17-24	8	CL8	Name of initializer's load module
25-32	8	CL8	Unused in release 4.0
33-40	8	CL8	DUMP parameter
41-48	8	CL8	PRINTER-DD parameter
49-56	8	CL8	OUTPUT-FILE parameter
57-58	2	PL2	Unused in release 4.0

The Supervisor

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS200000	Assembler	Supervisor

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS200000	HIS	HIS.REL4PT0	Supervisor

The HIS200000 Source Module - This module is the supervisor program. It monitors control of all program of HIS except the header. A description of the basic operations performed by the supervisor is provided earlier in this chapter in the section entitled "Flow of Control in HIS." The supervisor is also a means a communication between modules - a number of control blocks are maintained in the supervisor that can be accessed by other programs. The supervisor contains the following external references:

TITLES - TITLES control section (compiles as part of the supervisor)
 PRINTE - PRINT subroutine (address list)
 FETCHE - FETCH subroutine (address list)
 FETCHX - FETCH subroutine
 BPAMRDE - BPAMRD/TABLRD subroutine (address list)
 BPAMWRE - BPAMWR/TABLWR subroutine (address list)
 CHECKDD - CHECKDD subroutine
 DUMPDD - DUMPDD subroutine

The HIS200000 Load Module - The supervisor's load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
HIS200000	Supervisor
HIS200001	PRINT subroutine
HIS200002	FETCH subroutine
HIS200003	BPAMRD/TABLRD subroutine
HIS200004	BPAMWR/TABLWR subroutine
HIS200005	CHECKDD subroutine
HIS200006	GETTIOT subroutine
HIS200007	DUMPDD subroutine

The Dummy Savearea - The dummy savearea is the primary means of communication between the modules of the Highway Information System. The address of the dummy savearea can be obtained by calling the GETLIST program. The dummy savearea has this format:

<u>Bytes</u>	<u>Length</u>	<u>Format</u>	<u>Contents</u>
0-4	4	CL4	"HIS."
5-8	4	A	Savearea backward pointer
9-12	4	A	Savearea forward pointer
13-16	4	A	Address of print control block
17-20	4	A	Address of defaults block
21-24	4	A	Current module's entry point address
25-28	4	A	Address of system segment of instruction
29-32	4	A	Address of program segment of instruction
33-36	4	A	Address of parameter block
37-40	4	A	Address of PRINTE address list
41-44	4	A	Address of FETCHE address list
45-48	4	A	Address of CHECKDD subroutine
49-52	4	A	Address of BPAMRDE address list
53-56	4	A	Address of BPAMWRE address list
57-60	4	A	Address of DUMPDD subroutine
61-64	4	A	Currently unused
65-68	4	A	Currently unused
69-72	4	A	Currently unused

The Print Control Block - The print control block contains current print parameters. The format of this block is:

<u>Bytes</u>	<u>Length</u>	<u>Format</u>	<u>Contents</u>
1-2	2	PL2	Number of lines per page
3-4	2	PL2	Current line number
5-6	2	PL2	Top margin
7-9	3	PL3	Page number
10-11	2	PL2	Table number
12	1	CL1	Page eject
13-14	2	H	Odd page position
15-16	2	H	Even page position
17-24	8	CL8	Current PRINTER-DD ddname
25-32	8	CL8	Next PRINTER-DD ddname
33-34	2	PL2	Number of copies - unused in release 4.0
35-37	3	PL3	Number of pages printed by current program
38-45	8	CL8	TITLE-DD ddname
46-53	8	CL8	Next OUTPUT-FILE ddname
54-61	8	CL8	Current OUTPUT-FILE ddname
62-64	3		Unused
65-68	4	A	Address of titles
69-70	2	H	Number of titles
71-72	2	H	Number of headings
73-76	4	A	Address of headings
77-80	4		Unused
81-176	96	DCB	PRINTER-DD DCB
177-272	96	DCB	OUTPUT-FILE DCB

The Default Block - The default block is used by the initialization program.

It has this format:

<u>Bytes</u>	<u>Length</u>	<u>Format</u>	<u>Contents</u>
1-2	2	H	Odd page position
3-4	2	H	Even page position
5-6	2	PL2	Number of lines per page
7-8	2	PL2	Top margin
9	1	CL1	Page eject
10-17	8	CL8	PRINTER-DD
18-19	2	PL2	Number of copies - unused in release 4.0
20-27	8	CL8	TITLE-DD
28-35	8	CL8	OUTPUT-FILE
36	1	PL1	Page increment

The Decoder Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20100	Assembler	Decoder mainline
HIS20101	Assembler	DECGPRG subroutine
HIS20102	Assembler	DECPARS subroutine
HIS20103	Assembler	DECTRAN subroutine
HIS20104	Assembler	DECDATA subroutine
HIS20106	Assembler	DECPARM subroutine
HIS20107	Assembler	DECPPARM subroutine

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS20100	DECODER	HIS.REL4PT0	Decoder

The HIS20100 Source Module - This module is the mainline program of the decoder. It contains the following external references:

PRINTER,SETHDG - PRINT subroutine
DATE4 - DATE4 subroutine
DECGPRG - DECGPRG subroutine
DECPARS - DECPARS subroutine
DECPARM - DECPARM subroutine
DECTRAN - DECTRAN subroutine
DECPPARM - DECPPARM subroutine

Two registers are set by the mainline program and kept for the duration of the decoder's execution. Programs called by the mainline may make use of these values. Care must be taken to restore these registers before returning to the mainline if the contents are changed. The affected registers are:

10 - Contains address of PRINTER
11 - Contains address of decoder block

The decoder block provides a communications area for use by the various decoder routines.

The HIS20101 Source Module - This module is the DECGPRG subroutine. It is called once whenever the decoder is executed. It reads the program table from the HIS.TABLES library and stores the table in the decoder block. It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS20102 Source Module - This module is the DECPARS subroutine. It reads and parses a command. It initializes a skeleton version of the instruction with blanks and stores the program name and load module name in the instruction. If there is a PARM parameter, the parameter is stored into the instruction. All other parameters are broken down into a keyword and an option and stored in the decoder block. DECPARS contains the following external references:

GETLIST - GETLIST subroutine

PRINT - PRINT subroutine

The HIS20103 Source Module - This module is the DECTAN subroutine. It handles any command parameters that cannot be handled by the DECPARM subroutine. All of these parameters are handled by special code within the DECTAN subroutine. Parameters that are handled by this module include:

FILE
REPORT
FUNCTION
SUMMARY
TOP-MARGIN
TABLE-NUMBER
PAGE-NUMBER
FORMAT
COUNTY
DATA
MAINT-DIV

DECTAN contains the following external references:

DECDATA - DECDATA subroutine

PRINT - PRINT subroutine

The HIS20104 Source Module - This module is the DECDATA subroutine. It is called by DECTAN whenever a DATA parameter is encountered. It translates the DATA parameter into the instruction. DECDATA contains no external references.

The HIS20106 Source Module - This module is the DECPARM subroutine. It handles all "standard" command parameters (those that are defined in the command parameter table). It contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS20107 Source Module - This module is the DECPPARM subroutine. It utilizes the passed parameter table of HIS.TABLES to pass cataloged parameters to programs. When called, it checks whether a parameter is cataloged. If one is (and if no PARM parameter was coded on the command), it is placed into the instruction. DECPPARM contains the following external references:

TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS20100 Load Module - The decoder load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
HIS20100	Decoder mainline
HIS20101	DECGPRG subroutine
HIS20102	DECPARS subroutine
HIS20103	DECTAN subroutine
HIS20104	DECDATA subroutine
HIS20105	DECPASS subroutine
HIS20106	DECPARM subroutine
HIS20107	DECPPARM subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The Decoder Block - The decoder block is used for communications between the decoder modules. Its format is:

<u>Bytes</u>	<u>Length</u>	<u>Format</u>	<u>Contents</u>
1-380	380	380CL1	Instruction
381-382	2	H	Number of command parameters
383-1982	1600	20CL80	Command parameters
1983-1984	2	H	Number of program table entries
1985-16484	14500	500CL29	Program table entries

The PRINT Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20001	Assembler	PRINT subroutine
HIS20050	Assembler	PRINT interface
HIS20905	Assembler	PRINTER control section

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
PRINT	---	HIS.SUBRTN4	PRINT interface
PRINTER	---	HIS.SUBRTN4	PRINTER control section

The HIS20001 Source Module - This module is the PRINT subroutine. It contains no external references. It resides in only the supervisor's load module. The PRINT interface is linked with all other modules that call PRINT.

The HIS20050 Source Module - This module is the PRINT interface. It is linked in all modules that call PRINT except the supervisor's module. When called, it locates the PRINT subroutine and passes control to it. It contains the following external reference:

GETLIST - GETLIST subroutine

The HIS20905 Source Module - This module is the PRINTER control section. It is linked with assembler-language programs that call PRINT. It contains the equivalent control section as that generated by PL/I for the declaration
 DECLARE PRINTER CHARACTER(132) EXTERNAL;.

The PRINT Load Module - This module is stored in the HIS.SUBRTN4 library. It allows inclusion of PRINT by automatic call when link-editing. It contains the HIS20050 source module.

The PRINTER Load Module - This module is stored in the HIS.SUBRTN4 library. It allows inclusion of the PRINTER control section by automatic call when link-editing. It contains the HIS20905 source module.

The FETCH Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20002	Assembler	FETCH subroutine
HIS20051	Assembler	FETCH interface

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
FETCH	HIS.SUBRTN4	FETCH interface

The HIS20002 Source Module - This module is the FETCH subroutine. It contains the following external references:

PRINTER,PRINT,PRINTE,DUMP - PRINT subroutine
CHECKDD - CHECKDD subroutine
TABLRD,TABLRDI,TABLRDC - TABLRD subroutine

The HIS20051 Source Module - This module is the FETCH interface. It is linked with programs (other than the supervisor) that call FETCH. It contains the following external reference:

GETLIST - GETLIST subroutine

The FETCH Load Module - This module is stored in the HIS.SUBRTN4 library. It allows inclusion of FETCH by automatic call when link-editing. It contains the HIS20051 source module.

The BPAMRD/TABLRD Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20003	Assembler	BPAMRD/TABLRD subroutine
HIS20052	Assembler	BPAMRD interface
HIS20053	Assembler	TABLRD interface

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
BPAMRD	HIS.SUBRTN4	BPAMRD interface
TABLRD	HIS.SUBRTN4	TABLRD interface

The HIS20003 Source Module - This module is the BPAMRD/TABLRD subroutine. It contains entry points for the functions of both BPAMRD and TABLRD. It resides in the supervisor's load module and is accessed via interface subroutines. It contains the following external references:

PRINTER,PRINT,DUMP,PRINTE - PRINT subroutine
DUMPDD - DUMPDD subroutine

The HIS20052 Source Module - This module is the BPAMRD interface. It interfaces to the BPAMRD, BPAMRDI, and BPAMRDC entry points of BPAMRD/TABLRD. It is linked with programs that call BPAMRD. It contains the following external reference:

GETLIST - GETLIST subroutine

The HIS20053 Source Module - This module is the TABLRD interface. It interfaces to the TABLRD, TABLRDI, and TABLRDC entry points of BPAMRD/TABLRD. It is linked with programs that call TABLRD. It contains the following external reference:

GETLIST - GETLIST subroutine

The BPAMRD Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of BPAMRD by automatic call when link-editing. It contains the HIS20052 source module.

The TABLRD Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of TABLRD by automatic call when link-editing. It contains the HIS20053 source module.

The BPAMWR/TABLWR Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20004	Assembler	BPAMWR/TABLWR subroutine
HIS20054	Assembler	BPAMWR interface
HIS20055	Assembler	TABLWR interface

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
BPAMWR	HIS.SUBRTN4	BPAMWR interface
TABLWR	HIS.SUBRTN4	TABLWR interface

The HIS20004 Source Module - This module is the BPAMWR/TABLWR subroutine. It contains entry points for the functions of both BPAMWR and TABLWR. It resides in the supervisor's load module and is accessed via interface subroutines. It contains the following external references:

PRINTER,PRINT,DUMP,PRINTE - PRINT subroutine
DUMPDD - DUMPDD subroutine

The HIS20054 Source Module - This module is the BPAMWR interface. It is linked with programs that call BPAMWR. It contains the following external reference: GETLIST - GETLIST subroutine.

The HIS20055 Source Module - This module is the TABLWR interface. It is linked with programs that call TABLWR. It contains the following external reference: GETLIST - GETLIST subroutine.

The BPAMWR Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of BPAMWR by automatic call when link-editing. It contains the HIS20054 source module.

The TABLWR Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of TABLWR by automatic call when link-editing. It contains the HIS20055 source module.

The CHECKDD Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20005	Assembler	CHECKDD subroutine
HIS20056	Assembler	CHECKDD interface

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CHECKDD	HIS.SUBRTN4	CHECKDD interface

The HIS20005 Source Module - This module is the CHECKDD subroutine. It contains the following external reference:

GETTIOT - GETTIOT subroutine

The HIS20056 Source Module - This module is the CHECKDD interface. It is linked with programs that call CHECKDD. It contains the following external reference: GETLIST - GETLIST subroutine

The CHECKDD Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of CHECKDD by automatic call when link-editing. It contains the HIS20056 source module.

The GETTIOT Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20006	Assembler	GETTIOT subroutine

The HIS20006 Source Module - This module is the GETTIOT subroutine. It contains no external references:

The DUMPDD Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20007	Assembler	DUMPDD subroutine
HIS20057	Assembler	DUMPDD interface

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
DUMPDD	HIS.SUBRTN4	DUMPDD interface

The HIS20007 Source Module - This module is the DUMPDD subroutine. It resides in the supervisor's load module and is accessed via an interface subroutine. It contains the following external references:

PRINTER,PRINT,DUMP,PRINTE - PRINT subroutine
CHECKDD - CHECKDD subroutine

The HIS20057 Source Module - This module is the DUMPDD interface. It is linked with programs that call DUMPDD. It contains the following external reference: GETLIST - GETLIST subroutine.

The DUMPDD Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of DUMPDD by automatic call when link-editing. It contains the HIS20057 source module.

The GETLIST Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20058	Assembler	GETLIST subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
GETLIST	HIS.SUBRTN4	GETLIST subroutine

The HIS20058 Source Module - This module is the GETLIST subroutine. It contains no external references.

The GETLIST Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of GETLIST by automatic call when link-editing. It contains the HIS20058 source module.

The Initialization Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20200	Assembler	Initialization mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS20200	INITIAL	HIS.REL4PT0	Initialization program

The HIS20200 Source Module - This module is the initialization program. It is called by the supervisor each time an instruction is read just prior to calling the application program requested in the instruction. The initialization program prepares the print control block for the application program. The initialization program contains no external references.

The HIS20200 Load Module - The initialization program's load module contains the HIS20200 source module.

CHAPTER 14

MISCELLANEOUS PROGRAMS AND SUBROUTINES

The CNVSTAT Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20900	PL/I	CNVSTAT subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CNVSTAT	HIS.SUBRTN4	CNVSTAT subroutine

The HIS20900 Source Module - This source module is the CNVSTAT subroutine. It contains no external references.

The CNVSTAT Load Module - This load module is stored in the HIS.SUBRTN4 library to allow retrieval by automatic call when link-editing. It contains the HIS20900 source module.

The GETDAY Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20901	PL/I	GETDAY subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
GETDAY	HIS.SUBRTN4	GETDAY subroutine

The HIS20901 Source Module - This module is the GETDAY subroutine. It contains no external references.

The GETDAY Load Module - This module is stored in the HIS.SUBRTN4 library to allow retrieval by automatic call when link-editing. It contains the HIS20901 source module.

The GETDATE Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20902	Assembler	GETDATE subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
GETDATE	HIS.SUBRTN4	GETDATE subroutine

The HIS20902 Source Module -- This module is the GETDATE subroutine. It contains no external references.

The GETDATE Load Module - This module is stored in the HIS.SUBRTN4 library to allow retrieval by automatic call when link-editing. It contains the HIS20902 source module.

The DATEDIT Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20903	Assembler	DATEDIT subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
DATEDIT	HIS.SUBRTN4	DATEDIT subroutine

The HIS20903 Source Module - This module is the DATEDIT subroutine. It contains no external references.

The DATEDIT Load Module - This module is stored in the HIS.SUBRTN4 library to allow retrieval of DATEDIT by automatic call when link-editing. It contains the HIS20903 Source Module.

The CVTLOCN Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20904	Assembler	CVTLOCN subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
CVTLOCN	HIS.SUBRTN4	CVTLOCN subroutine

The HIS20904 Source Module - This module is the CVTLOCN subroutine. It contains the following external references:

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The CVTLOCN Load Module - This module is stored in the HIS.SUBRTN4 library to allow retrieval of CVTLOCN by automatic call when link-editing. It contains the HIS20904 source module.

The DATE1 Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20906	Assembler	DATE1 subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
DATE1	HIS.SUBRTN4	DATE1 subroutine

The HIS20906 Source Module - This module is the DATE1 subroutine. It contains no external references.

The DATE1 Load Module - This module is stored in the HIS.SUBRTN4 library to allow retrieval of DATE1 by automatic call when link-editing. It contains the HIS20906 source module.

The DATE2 Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20907	Assembler	DATE2 subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
DATE2	HIS.SUBRTN4	DATE2 subroutine

The HIS20907 Source Module - This module is the DATE2 subroutine. It contains no external references.

The DATE2 Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of DATE2 by automatic call when link-editing. It contains the HIS20907 source module.

The DATE3 subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20908	Assembler	DATE3 subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
DATE3	HIS.SUBRTN4	DATE3 subroutine

The HIS20908 Source Module - This module is the DATE3 subroutine. It contains the following external references:

GETDATE - GETDATE subroutine

DATE1 - DATE1 subroutine

The DATE3 Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of DATE3 by automatic call when link-editing. It contains the HIS20908 source module.

The DATE4 Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20909	Assembler	DATE4 subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
DATE4	HIS.SUBRTN4	DATE4 subroutine

The HIS20909 Source Module - This module is the DATE4 subroutine. It contains the following external references:

GETDATE - GETDATE subroutine

DATE2 - DATE2 subroutine

The DATE4 Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of DATE4 by automatic call when link-editing. It contains the HIS20909 source module.

The BANNER Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20910	PL/I	BANNER subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
BANNER	HIS.SUBRTN4	BANNER subroutine

The HIS20910 Source Module - This module is the BANNER subroutine. It contains the following external references:

PRINTER,PRINT,DUMP - PRINT subroutine

The BANNER Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of BANNER by automatic call when link-editing. It contains the HIS20910 source module.

The READ Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20970	Assembler	READ subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
READ	HIS.SUBRTN4	READ subroutine

The HIS20970 Source Module - This module is the READ subroutine. It contains the following external references:

CHECKDD - CHECKDD subroutine

PDSRD,PDSRDF,PDSRDO,PDSRDC - PDSRD subroutine

The READ Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of READ by automatic call when link-editing. It contains the HIS20970 source module.

The PDSDIR Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20980	Assembler	PDSDIR subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
PDSDIR	HIS.SUBRTN4	PDSDIR subroutine

The HIS20980 Source Module - This module is the PDSDIR subroutine. It contains the following external reference:

CHECKDD - CHECKDD subroutine

The PDSDIR Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion by automatic call when link-editing. It contains the HIS20980 source module.

The PDSRD Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS2Ø981	Assembler	PDSRD Subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
PDSRD	HIS.SUBRTN4	PDSRD subroutine

The HIS2Ø981 Source Module - This module is the PDSRD subroutine. It contains the following external reference:

CHECKDD - CHECKDD subroutine

The PDSRD Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of PDSRD by automatic call when link-editing. It contains the HIS2Ø981 source module.

The GETJFCB Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS2Ø982	Assembler	GETJFCB subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
GETJFCB	HIS.SUBRTN4	GETJFCB subroutine

The HIS2Ø982 Source Module - This module is the GETJFCB subroutine. It contains no external references.

The GETJFCB Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of GETJFCB by automatic call when link-editing. It contains the HIS2Ø982 source module.

The GETDSCB Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20983	Assembler	GETDSCB subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
GETDSCB	HIS.SUBRTN4	GETDSCB subroutine

The HIS20983 Source Module - This module is the GETDSCB subroutine. It contains the following external reference:

GETJFCB - GETJFCB subroutine

The GETDSCB Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of GETDSCB by automatic call when link-editing. It contains the HIS20983 source module.

The BACKUP Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20990	Assembler	BACKUP subroutine
<u>Load Module</u>	<u>Library</u>	<u>Function</u>
BACKUP	HIS.SUBRTN4	BACKUP subroutine

The HIS20990 Source Module - This module is the BACKUP subroutine. It contains the following external references:

DUMPDD - DUMPDD subroutine

PRINTER,PRINT,DUMP - PRINT subroutine

The BACKUP Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of BACKUP by automatic call. It contains the HIS20990 source module.

The LOAD Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS20991	Assembler	LOAD subroutine

<u>Load Module</u>	<u>Library</u>	<u>Function</u>
LOAD	HIS.SUBRTN4	LOAD subroutine

The HIS20991 Source Module - This module is the LOAD subroutine. It contains the following external references:

DUMPDD - DUMPDD subroutine
PRINTER,PRINT,DUMP - PRINT subroutine

The LOAD Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of LOAD by automatic call when link-editing. It contains the HIS20991 source module.

The PRINT-SOURCE-LISTING Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS23010	PL/I	PRINT-SOURCE-LISTING mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23010	PLISTART	HIS.REL4PT0	PRINT-SOURCE-LISTING

The HIS23010 Source Module - This module is the mainline program of PRINT-SOURCE-LISTING. It contains the following external references:

PRINTER,PRINT,PRINTA,SETNEW,SETINST,SETHDG,SETLINK,DUMP - PRINT
subroutine

The HIS23010 Load Module - The PRINT-SOURCE-LISTING load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20058	GETLIST subroutine
HIS23010	PRINT-SOURCE-LISTING mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The PANBACK Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS23020	PL/I	PANBACK mainline
HIS23021	Assembler	PANCALL subroutine

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23020	PLISTART	HIS.REL4PT0	PANBACK

The HIS23020 Source Module - This module is the mainline program of PANBACK. It contains the following external references:

PRINTER,PRINT,SETPOS,SETNEW,SETHDG,SETINST,DUMP - PRINT subroutine
 DATE4 - DATE4 subroutine
 POPEN,PCLOSE,PREAD,PSRCH - PANVALET access method (provided by
 Pansophic Systems, Incorporated)
 PANCALL - PANCALL subroutine

The mainline program first performs a loop in which the submitted data cards are read and processed. During this loop two scratch files are built - one of PANVALET commands for later submission to the PANVALET programs and one of source modules for merging with the previous backup tape. The program then enters a second pass in which the new backup tape is constructed (separate code is utilized for TYPE-RUN=MERGE and for TYPE-RUN=NOMERGE). Finally, PANCALL is called to dynamically invoke the PANVALET system which processes the PANVALET commands stored during the first loop.

The HIS23021 Source Module - This module is the PANCALL subroutine. It dynamically loads the PANVALET system via a call to FETCH subroutine and then passes control to PANVALET. A PARM is passed that indicates that the input ddname 'PANSCR' is to be used.

The HIS23020 Load Module - The PANBACK load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20051	FETCH interface
* HIS20058	GETLIST subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
HIS23020	PANBACK mainline
HIS23021	PANCALL subroutine

Modules comprising the PANVALET access method

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The PANRSTR Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS23023	PL/I	PANRSTR mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23023	PLISTART	HIS.REL4PT0	PANRSTR

The HIS23023 Source Module - This module is the PANRSTR program. It contains no external references.

The HIS23023 Load Module - The PANRSTR load module contains the HIS23023 source module.

The PANBACK-TO-PDS Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23024	PL/I	PANBACK-TO-PDS mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23024	PLISTART	HIS.REL4PT0	PANBACK-TO-PDS

The HIS23024 Source Module - This module is the PANBACK-TO-PDS program. It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETHDG,DUMP - PRINT subroutine
BPAMWR,BPAMWRI,BPAMWRC - BPAMWR subroutine
DUMPDD - DUMPDD subroutine

The HIS23024 Load Module - The PANBACK-TO-PDS load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20054	BPAMWR interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
HIS23024	PANBACK-TO-PDS mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-PDS-DIREC Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23030	PL/I	LIST-PDS-DIREC mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23030	PLISTART	HIS.REL4PT0	LIST-PDS-DIREC

The HIS23030 Source Module - This module is the LIST-PDS-DIREC program. It contains the following external references:

PRINTER,PRINT,SETPOS,SETHDG,SETINST,DUMP - PRINT subroutine
 PDSDIR,PDSDIRO,PDSDIRC - PDSDIR subroutine
 DATE4 - DATE4 subroutine

The HIS23030 Load Module - The LIST-PDS-DIREC load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20056	CHECKDD interface
* HIS20058	GETLIST subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
* HIS20980	PDSDIR subroutine
HIS23030	LIST-PDS-DIREC mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-PDS-MEMBERS Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS23031	PL/I	LIST-PDS-MEMBERS mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23031	PLISTART	HIS.REL4PT0	LIST-PDS-MEMBERS

The HIS23031 Source Module - This module is the LIST-PDS-MEMBERS Program. It contains the following external references:

PRINTER,PRINT,SETPOS,SETNEW,SETHDG,SETINST,DUMP - PRINT subroutine
 PDSDIR,PDSDIRO,PDSDIRC - PDSDIR subroutine
 PDSRD,PDSRDO,PDSRDF,PDSRDC - PDSRD subroutine
 GETJFCB - GETJFCB subroutine
 DATE4 - DATE4 subroutine

The HIS23031 Load Module - The LIST-PDS-MEMBERS load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20056	CHECKDD interface
* HIS20058	GETLIST subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
* HIS20980	PDSDIR subroutine
* HIS20981	PDSRD subroutine
* HIS20982	GETJFCB subroutine
HIS23031	LIST-PDS-MEMBERS mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The PRINT-JFCB Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS23040	PL/I	PRINT-JFCB mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23040	PLISTART	HIS.REL4PT0	PRINT-JFCB

The HIS23040 Source Module - This module is the PRINT-JFCB program. It contains the following external references:

PRINTER,PRINT,SETHDG,SETINST,DUMP - PRINT subroutine
 GETJFCB - GETJFCB subroutine
 DATE4 - DATE4 subroutine

The HIS23040 Load Module - The PRINT-JFCB load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20058	GETLIST subroutine

(continued on next page)

<u>Source Module</u>	<u>Function</u>
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
* HIS20982	GETJFCB subroutine
HIS23040	PRINT-JFCB mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The PRINT-DSCB Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS23041	PL/I	PRINT-DSCB mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23041	PLISTART	HIS.REL4PT0	PRINT-DSCB

The HIS23041 Source Module - This module is the PRINT-DSCB program. It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETPOSA,SETHDG,SETINST,DUMP - PRINT
subroutine
DATE4 - DATE4 subroutine
GETDSCB - GETDSCB subroutine

The HIS23041 Load Module - The PRINT-DSCB load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20058	GETLIST subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
* HIS20982	GETJFCB subroutine
* HIS20983	GETDSCB subroutine
HIS23041	PRINT-DSCB mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CALC-BLOCKSIZE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23050	PL/I	CALC-BLOCKSIZE mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23050	PLISTART	HIS.REL4PT0	CALC-BLOCKSIZE

The HIS23050 Source Module - This module is the CALC-BLOCKSIZE program.
It contains the following external references:

PRINTER,PRINT,SETPOS,SETNEW,SETHDG,DUMP - PRINT subroutine
DATE4 - DATE4 subroutine
DUMPDD - DUMPDD subroutine

The HIS23050 Load Module - The CALC-BLOCKSIZE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
HIS23050	CALC-BLOCKSIZE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HISCOPY Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23060	Assembler	HISCOPY	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HISCOPY	HISCOPY	HIS.REL4PT0	HISCOPY

The HIS23060 Source Module - This module is the HISCOPY program. It contains no external references. The program performs the following steps:

1. Issue LOAD macro for IEBCOPY utility program.
2. Issue ENQ macro with QNAME of CL8'HIS' and RNAME of C'LIBRARY'.
3. Call IEBCOPY.
4. Issue DEQ macro.

This program is used for all compilations to HIS.OBJECT and for all link-edits to HIS.LOADTST, HIS.SUBRTN4, or HIS.REL4PT0 to allow two or more programs to execute simultaneously but only one to be updating a library at a given time.

The HISCOPY Load Module - The HISCOPY load module contains the HIS23060 source module.

The PRNT133 Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23061	PL/I	PRNT133	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
PRNT133	PLISTART	HIS.REL4PT0	PRNT133

The HIS23061 Source Module - This module is the PRNT133 program. It contains no external references. It is available to copy a disk/tape file created through the use of the OUTPUT-FILE parameter to the line printer.

The PRNT133 Load Module - The PRNT133 load module contains the HIS23061 source module.

The PRINT-MAINT-LIST Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23071	PL/I	PRINT-MAINT-LIST mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23071	PLISTART	HIS.REL4PT0	PRINT-MAINT-LIST

The HIS23071 Source Module - This module is the PRINT-MAINT-LIST program.
It contains the following external references:

PRINTER,PRINT,SETNEW,SETHDG,DUMP - PRINT subroutine
DATE4 - DATE4 subroutine
POPEN,PCLOSE,PSRCH - PANVALET access method (supplied by Pansophic
Systems, Incorporated)
PDSDIR,PDSDIRO,PDSDIRC - PDSDIR subroutine

The HIS23071 Load Module - The PRINT-MAINT-LIST load module contains the
following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20056	CHECKDD interface
* HIS20058	GETLIST subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
* HIS20980	PDSDIR subroutine
HIS23071	PRINT-MAINT-LIST mainline

Modules comprising the PANVALET access method

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The COPY-PROCS Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23080	PL/I	COPY-PROCS mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23080	PLISTART	HIS.REL4PT0	COPY-PROCS

The HIS23080 Source Module - This module is the COPY-PROCS program. It contains the following external references:

PRINTER,PRINT,SETHDG,DUMP - PRINT subroutine
BPAMRD,BPAMRDI,BPAMRDC - BPAMRD subroutine

The HIS23080 Load Module - The COPY-PROCS load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20052	BPAMRD interface
* HIS20058	GETLIST subroutine
HIS23080	COPY-PROCS mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The COPY-SEQL-FILE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS23090	Assembler	COPY-SEQL-FILE mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS23090	COPYSEQL	HIS.REL4PT0	COPY-SEQL-FILE

The HIS23090 Source Module - This module is the COPY-SEQL-FILE program.
It contains the following external references:

PRINTER,PRINT,SETHDGS,SETINST,DUMP - PRINT subroutine
DATE4 - DATE4 subroutine
DUMPDD - DUMPDD subroutine

The HIS23090 Load Module - The COPY-SEQL-FILE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
HIS23090	COPY-SEQL-FILE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The GRIDSEP Subroutine

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS37100	PL/I	GRIDSEP subroutine

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
GRIDSEP	---	HIS.SUBRTN4	GRIDSEP subroutine

The HIS37100 Source Module - This module is the GRIDSEP subroutine. It contains no external references.

The GRIDSEP Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of GRIDSEP by automatic call when link-editing. It contains the HIS37100 source module.

The GRIDTBL-SORT-&-LIST Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS37200	PL/I	GRIDTBL-SORT-&-LIST mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS37200	PLISTART	HIS.REL4PT0	GRIDTBL-SORT-&-LIST

The HIS37200 Source Module - This module is the GRIDTBL-SORT-&-LIST program.
It contains the following external references:

PRINTER,PRINT,SETNEW,SETINST,SETHDGS,DUMP - PRINT subroutine
GRIDSEP - GRIDSEP subroutine
INCITY - INCITY subroutine

The HIS37200 Load Module - The GRIDTBL-SORT-&-LIST load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
* HIS21012	INCITY subroutine
* HIS37200	GRIDSEP subroutine
HIS37200	GRIDTBL-SORT-&-LIST mainline
* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.	

The GRIDTBL-CODING-SHEET Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS37201	PL/I	GRIDTBL-CODING-SHEET mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS37201	PLISTART	HIS.REL4PT0	GRIDTBL-CODING-SHEET

The HIS37201 Source Module - This module is the GRIDTBL-CODING-SHEET program. It contains the following external references:

PRINTER,PRINT,SETNEW,SETHDGS,SETINST,DUMP - PRINT subroutine
 INCITY - INCITY subroutine
 CVTCITY - CVTCITY subroutine
 DUMPDD - DUMPDD subroutine

The HIS37201 Load Module - The GRIDTBL-CODING-SHEET load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
* HIS21012	INCITY subroutine
* HIS21013	CVTCITY subroutine
HIS37201	GRIDTBL-CODING-SHEET mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The EDIT-GRIDTBL Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS37500	PL/I	EDIT-GRIDTBL mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS37500	PLISTART	HIS.REL4PT0	EDIT-GRIDTBL

The HIS37500 Source Module - This module is the EDIT-GRIDTBL program. It contains the following external references:

PRINTER,PRINT,PRINTA,SETHDGS,SETINST,DUMP - PRINT subroutine
 INCITY - INCITY subroutine

The HIS35700 Load Module - The EDIT-GRIDTBL load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
* HIS21012	INCITY subroutine
HIS35700	EDIT-GRIDTBL mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CITY-ROUTE-XREF Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS37600	PL/I	CITY-ROUTE-XREF mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS37600	PLISTART	HIS.REL4PT0	CITY-ROUTE-XREF

The HIS37600 Source Module - This module is the CITY-ROUTE-XREF program. It contains the following external references:

PRINTER,PRINT,SETNEW,SETHDG,SETINST,DUMP - PRINT subroutine
 GETCITY,GETCITI,GETCITC - GETCITY subroutine
 CVTCITY - CVTCITY subroutine
 DATE4 - DATE4 subroutine
 DUMPDD - DUMPDD subroutine

The HIS37600 Load Module - The CITY-ROUTE-XREF load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine

(continued on next page)

<u>Source Module</u>	<u>Function</u>
* HIS20902	GETDATE subroutine
* HIS20907	DATE2 subroutine
* HIS20909	DATE4 subroutine
* HIS21013	CVTCITY subroutine
* HIS21016	GETCITY subroutine
HIS37600	CITY-ROUTE-XREF mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The BUILD-GRID-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>
HIS37610	PL/I	BUILD-GRID-TABLE mainline

<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS37610	PLISTART	HIS.REL4PT0	BUILD-GRID-TABLE

The HIS37610 Source Module - This module is the BUILD-GRID-TABLE mainline.
It contains the following external references:

PRINTER,PRINT,PRINTA,SETPOS,SETHDGS,SETINST,DUMP - PRINT subroutine
DUMPDD - DUMPDD subroutine
CVTCITY - CVTCITY subroutine
INCITY - INCITY subroutine

The HIS37610 Load Module - The BUILD-GRID-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20057	DUMPDD interface
* HIS20053	TABLRD interface
* HIS20058	GETLIST subroutine
* HIS21012	INCITY subroutine
* HIS21013	CVTCITY subroutine
HIS37610	BUILD-GRID-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-GRID-TABLE Program

<u>Source Module</u>	<u>Language</u>	<u>Function</u>	
HIS37611	PL/I	LIST-GRID-TABLE mainline	
<u>Load Module</u>	<u>Entry Point</u>	<u>Library</u>	<u>Function</u>
HIS37611	PLISTART	HIS.REL4PT0	LIST-GRID-TABLE

The HIS37611 Source Module - This module is the LIST-GRID-TABLE program.

It contains the following external references:

PRINTER,PRINT,SETNEW,SETHDGS,SETINST,DUMP - PRINT subroutine
CVTCITY - CVTCITY subroutine
INCITY - INCITY subroutine
DUMPDD - DUMPDD subroutine

The HIS37611 Load Module - The LIST-GRID-TABLE load module contains the following source modules:

<u>Source Module</u>	<u>Function</u>
* HIS20050	PRINT interface
* HIS20053	TABLRD interface
* HIS20057	DUMPDD interface
* HIS20058	GETLIST subroutine
* HIS21012	INCITY subroutine
* HIS21013	CVTCITY subroutine
HIS37611	LIST-GRID-TABLE mainline

* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

APPENDIX A

MODULE NAMES

Modules Used With the PANVALET ++INCLUDE Facility

HISXDSCBP	PL/I	Formats of Data Set Control Blocks (DSCB's)
HISXDSCB1A	Assembler	Format 1 DSCB
HISXDSCB2A	Assembler	Format 2 DSCB
HISXDSCB3A	Assembler	Format 3 DSCB
HISXJFCBA	Assembler	JFCB format
HISXSGNRC	PL/I	Urban sign - Record formats
HISXUSNRD	PL/I	Urban sign - Record formats and USNRD calls
HISXUSNED	PL/I	Urban sign - Edit tables (used by update program)
HISXUSNVAL	PL/I	Urban sign - Value table (used by update program)
HISXUSNERR	PL/I	Urban sign - Error table (used by update program)

These modules appear in source module format only and are stored in the PANVALET system.

CRJE Utility Programs

Source and Object Modules

<u>Module Name</u>	<u>Function</u>
HISUT000	Assembler output analyzer
HISUT001	PL/I optimizer output analyzer
HISUT003	Link-editor output analyzer
HISUT004	Link-editor dynamic invocation
HISUT005	PANVALET output analyzer
HISUT006	PANVALET dynamic invocation

Load Modules - HIS.REL4PT0 Library

<u>Module Name</u>	<u>Function</u>
HISUT000	Assembler output analyzer
HISUT001	PL/I optimizer output analyzer
HISUT003	Link-editor output analyzer
HISUT004	Link-editor dynamic invocation
HISUT005	PANVALET output analyzer
HISUT006	PANVALET dynamic invocation

HIS20 Subsystem - Supervisory Software and Miscellaneous Subroutines

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS20000	Assembler	Supervisor
HIS20001	Assembler	PRINT subroutine
HIS20002	Assembler	FETCH subroutine
HIS20003	Assembler	BPAMRD/TABLRD subroutine
HIS20004	Assembler	BPAMWR/TABLWR subroutine
HIS20005	Assembler	CHECKDD subroutine
HIS20006	Assembler	GETTIOT subroutine
HIS20007	Assembler	DUMPDD subroutine
HIS20050	Assembler	PRINT interface
HIS20051	Assembler	FETCH interface
HIS20052	Assembler	BPAMRD interface
HIS20053	Assembler	TABLRD interface
HIS20054	Assembler	BPAMWR interface
HIS20055	Assembler	TABLWR interface
HIS20056	Assembler	CHECKDD interface
HIS20057	Assembler	DUMPDD interface
HIS20058	Assembler	GETLIST subroutine
HIS20100	Assembler	Decoder - mainline
HIS20101	Assembler	Decoder - DECGPRG subroutine
HIS20102	Assembler	Decoder - DECPARS subroutine
HIS20103	Assembler	Decoder - DECTAN subroutine
HIS20104	Assembler	Decoder - DECDDATA subroutine
HIS20106	Assembler	Decoder - DECPARM subroutine
HIS20107	Assembler	Decoder - DECPPARM subroutine
HIS20200	Assembler	Initializer
HIS20400	Assembler	Header - mainline
HIS20401	Assembler	Header - GETPARM subroutine
HIS20900	PL/I	CNVSTAT subroutine
HIS20901	PL/I	GETDAY subroutine
HIS20902	Assembler	GETDATE subroutine
HIS20903	Assembler	DATEDIT subroutine
HIS20904	Assembler	CVTLOCN subroutine
HIS20905	Assembler	Printer control section
HIS20906	Assembler	DATE1 subroutine
HIS20907	Assembler	DATE2 subroutine
HIS20908	Assembler	DATE3 subroutine
HIS20909	Assembler	DATE4 subroutine
HIS20910	PL/I	BANNER subroutine
HIS20970	Assembler	READ subroutine

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS20980	Assembler	PDSDIR subroutine
HIS20981	Assembler	PDSRD subroutine
HIS20982	Assembler	GETJFCB Subroutine
HIS20983	Assembler	GETDSCB subroutine
HIS20990	Assembler	BACKUP subroutine
HIS20991	Assembler	LOAD subroutine

Load Modules - Stored in HIS.REL4PT0 Library

<u>Module Name</u>	<u>Function</u>
HIS20000	Supervisor
HIS20100	Decoder
HIS20200	Initializer
HIS20400	Header

Load Modules - Stored in HIS.SUBRTN4 Library

PRINT	GETLIST	DATE2	GETDSCB
FETCH	CNVSTAT	DATE3	BACKUP
BPAMRD	GETDAY	DATE4	LOAD
TABLRD	GETDATE	BANNER	
BPAMWR	DATEDIT	READ	
TABLWR	CVTLOCN	PDSDIR	
CHECKDD	PRINTER	PDSRD	
DUMPDD	DATE1	GETJFCB	

HIS21 Subsystem - Tables

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS21000	PL/I	LIST-PROGRAM-TABLE
HIS21001	PL/I	UPDATE-PROGRAM-TABLE
HIS21010	PL/I	LIST-CITY-TABLE
HIS21011	PL/I	UPDATE-CITY-TABLE
HIS21012	Assembler	INCITY subroutine
HIS21013	Assembler	CVTCITY subroutine
HIS21016	Assembler	GETCITY subroutine
HIS21017	PL/I	GETCITY-TEST
HIS21018	Assembler	CNTCITY subroutine
HIS21019	PL/I	CNTCITY-TEST

Module Name	Language	Function
HIS21020	PL/I	COORDINATE-TABLE
HIS21021	Assembler	COORD subroutine
HIS21022	PL/I	COORD-TEST
HIS21030	PL/I	LIST-PROJECT-TABLE
HIS21031	PL/I	UPDATE-PROJECT-TABLE
HIS21032	PL/I	INPROJ subroutine
HIS21033	Assembler	CVTPROJ subroutine
HIS21040	PL/I	LIST-SURFACE-TABLE
HIS21041	PL/I	UPDATE-SURFACE-TABLE
HIS21042	Assembler	CVTSURF subroutine
HIS21050	PL/I	LIST-SUFF-TABLE
HIS21051	PL/I	UPDATE-SUFF-TABLE
HIS21052	PL/I	GETSUFF subroutine
HIS21060	Assembler	LIST-FILE-TABLE
HIS21061	PL/I	UPDATE-FILE-TABLE
HIS21062	Assembler	BUILD-FILE-TABLE
HIS21063	Assembler	FTSUM subroutine
HIS21064	Assembler	FTLOAD subroutine
HIS21065	Assembler	REWRITE subroutine
HIS21070	PL/I	PASSPARM-TABLE
HIS21080	PL/I	LIST-PARM-TABLE
HIS21081	PL/I	UPDATE-PARM-TABLE
HIS21090	PL/I	LIST-LOADMOD-TABLE
HIS21091	PL/I	LIST-SOURCE-XREF
HIS21110	PL/I	LIST-PTW-TABLE
HIS21112	Assembler	INPTW subroutine
HIS21113	Assembler	TESTPTW subroutine
HIS21130	PL/I	EQUIV-TABLE
HIS21140	PL/I	LIST-COUNTY-TABLE
HIS21141	PL/I	UPDATE-COUNTY-TABLE
HIS21142	Assembler	INCNTY subroutine
HIS21144	Assembler	CVTCNTY subroutine
HIS21150	Assembler	GETCNTY subroutine
HIS21151	PL/I	GETCNTY-TEST
HIS21152	Assembler	CNTCNTY subroutine
HIS21153	PL/I	CNTCNTY-TEST
HIS21900	PL/I	LOADPDS
HIS21901	PL/I	LISTPDS
HIS21902	PL/I	UPDPDS
HIS21903	Assembler	MODPDS

Load Modules - Stored in HIS.REL4PT0 Library

Module Name	Function
HIS21000	LIST-PROGRAM-TABLE
* HIS21001	UPDATE-PROGRAM-TABLE
HIS21010	LIST-CITY-TABLE
* HIS21011	UPDATE-CITY-TABLE
HIS21017	GETCITY-TEST
HIS21019	CNTCITY-TEST
* HIS21020	COORDINATE-TABLE
HIS21022	COORD-TEST
HIS21030	LIST-PROJECT-TABLE
* HIS21031	UPDATE-PROJECT-TABLE
HIS21040	LIST-SURFACE-TABLE
* HIS21041	UPDATE-SURFACE-TABLE
HIS21050	LIST-SUFF-TABLE
* HIS21051	UPDATE-SUFF-TABLE
HIS21060	LIST-FILE-TABLE
* HIS21061	UPDATE-FILE-TABLE
* HIS21062	BUILD-FILE-TABLE
* HIS21070	PASSPARM-TABLE
HIS21080	LIST-PARM-TABLE
* HIS21081	UPDATE-PARM-TABLE
HIS21090	LIST-LOADMOD-TABLE
HIS21091	LIST-SOURCE-XREF
HIS21110	LIST-PTW-TABLE
* HIS21130	EQUIV-TABLE
HIS21140	LIST-COUNTY-TABLE
* HIS21141	UPDATE-COUNTY-TABLE
HIS21151	GETCNTY-TEST
HIS21153	CNTCNTY-TEST
HIS21900	LOADPDS
HIS21901	LISTPDS
HIS21902	UPDPDS
HIS21903	MODPDS

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

INCITY	CVTPROJ	INCNTY
CVTCITY	CVTSURF	CVTCNTY
GETCITY	GETSUFF	GETCNTY
CNTCITY	REWRITE	CNTCNTY
COORD	INPTW	
INPROJ	TESTPTW	

HIS22 Subsystem - Select

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS22000	Assembler	SELTEST subroutine (select mainline)
HIS22001	Assembler	SELTEST interface
HIS22010	Assembler	SELREAD subroutine
HIS22011	Assembler	SELPARSE subroutine
HIS22012	Assembler	SELELEMT subroutine
HIS22013	Assembler	SELVERFY subroutine
HIS22014	Assembler	SELWRITE subroutine
HIS22020	Assembler	SELTESTX subroutine
HIS22021	Assembler	SELOPT subroutine
HIS22030	Assembler	SELGMIN subroutine
HIS22031	Assembler	SELGACC subroutine
HIS22200	PL/I	LIST-SELECT-TABLE

Load Modules - Stored in HIS.REL4PT0 Library

<u>Module Name</u>	<u>Function</u>
HIS22000	Select routines
HIS22200	LIST-SELECT-TABLE

Load Modules - Stored in HIS.SUBRTN4 Library

SELTEST

HIS23 Subsystem - Utility Programs

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS23010	PL/I	PRINT-SOURCE-LISTING
HIS23020	PL/I	PANBACK mainline
HIS23021	Assembler	PANBACK - PANCALL subroutine
HIS23023	PL/I	PANRSTR
HIS23024	PL/I	PANBACK-TO-PDS
HIS23030	PL/I	LIST-PDS-DIREC
HIS23031	PL/I	LIST-PDS-MEMBERS
HIS23040	PL/I	PRINT-JFCB
HIS23041	PL/I	PRINT-DSCB
HIS23050	PL/I	CALC-BLOCKSIZE
HIS23060	Assembler	HISCOPY
HIS23061	PL/I	PRNT133
HIS23071	PL/I	PRINT-MAINT-LIST
HIS23080	PL/I	COPY-PROCS
HIS23090	Assembler	COPY-SEQ-FILE

Load Modules - Stored in HIS.REL4PT0

<u>Module Name</u>	<u>Function</u>
HIS23010	PRINT-SOURCE-LISTING
HIS23020	PANBACK
HIS23023	PANRSTR
HIS23024	PANBACK-TO-PDS
HIS23030	LIST-PDS-DIREC
HIS23031	LIST-PDS-MEMBERS
HIS23040	PRINT-JFCB
HIS23041	PRINT-DSCB
HIS23050	CALC-BLOCKSIZE
HISCOPY	HISCOPY
PRNT133	PRNT133
HIS23071	PRINT-MAINT-LIST
HIS23080	COPY-PROCS
HIS23090	COPY-SEQL-FILE

HIS30 Subsystem - Roadlog

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS30000	Assembler	RLGRDQ subroutine
HIS30001	Assembler	RLGRDQ interface
HIS30002	Assembler	RLGINB subroutine
HIS30003	Assembler	RLGRWB subroutine
HIS30010	Assembler	RLGRD subroutine
HIS30011	Assembler	RLGRD interface
HIS30100	Assembler	COINKEY subroutine
HIS30101	PL/I	KEYRLG subroutine
HIS30200	PL/I	LIST-&-SUM
HIS30201	PL/I	SUMMARY-BY-ROUTES
HIS30202	PL/I	SURF-TYPE - mainline
HIS30203	PL/I	SURF-TYPE - SURTYPA subroutine
HIS30204	PL/I	SURF-TYPE - SURTYPB subroutine
HIS30205	PL/I	SURF-TYPE - SURTYPC subroutine
HIS30206	PL/I	SUMMARY-BY-LOCATION - mainline
HIS30207	PL/I	SUMMARY-BY-LOCATION - SUMLOCI subroutine
HIS30208	PL/I	SUMMARY-BY-LOCATION - SUMLOCC subroutine
HIS30209	PL/I	SUMMARY-BY-LOCATION - SUMLOCS subroutine
HIS30210	PL/I	FORHWY-SUMMARY - mainline
HIS30211	PL/I	FORHWY-SUMMARY - FORHWYL subroutine
HIS30212	PL/I	FORHWY-SUMMARY - FORHWYS subroutine

Module Name	Language	Function
HIS30300	PL/I	STATE-MILEAGE-502
HIS30301	PL/I	STATE-MILEAGE-505
HIS30302	PL/I	STATE-MILEAGE-506
HIS30400-HIS30499 - Reserved for use by Department of Highways		
HIS30700	PL/I	UPDATE FUNCTION=DELETE
HIS30701	PL/I	UPDATE FUNCTION=INSERT
HIS30702	PL/I	UPDATE FUNCTION=NEW-KEY
HIS30703	PL/I	UPDATE FUNCTION=REWRITE
HIS30710	PL/I	RLGRDC subroutine
HIS30711	PL/I	RLGCVT subroutine
HIS30712	PL/I	RLGEDIT subroutine
HIS30720	Assembler	COPY
HIS30721	Assembler	CREATE
HIS30722	Assembler	REORGANIZE
HIS30730	PL/I	DUMP
HIS30731	PL/I	LIST
HIS30732	PL/I	LIST-ILOOPS
HIS30735	PL/I	EDIT
HIS30900	PL/I	ROADLOG-TEST-00
HIS30901	PL/I	ROADLOG-TEST-01
HIS30902	PL/I	ROADLOG-TEST-02

Load Modules - Stored in HIS.REL4PT0 Library

Module Name	Function
HIS30000	RLGRDQ subroutine
HIS30010	RLGRD subroutine
HIS30200	LIST-&-SUM
HIS30201	SUMMARY-BY-ROUTES
HIS30202	SURF-TYPE
HIS30206	SUMMARY-BY-LOCATION
HIS30210	FORHWY-SUMMARY
HIS30300	STATE-MILEAGE-502
HIS30301	STATE-MILEAGE-505
HIS30302	STATE-MILEAGE-506
* HIS30700	UPDATE FUNCTION=DELETE
* HIS30701	UPDATE FUNCTION=INSERT
* HIS30702	UPDATE FUNCTION=NEW-KEY
* HIS30703	UPDATE FUNCTION=REWRITE
* HIS30720	COPY
* HIS30721	CREATE
* HIS30722	REORGANIZE

* Password protected.

Module Name	Function
HIS30730	DUMP
HIS30731	LIST
HIS30732	LIST-ILOOPS
HIS30735	EDIT
HIS30900	ROADLOG-TEST-00
HIS30901	ROADLOG-TEST-01
HIS30902	ROADLOG-TEST-02

Load Modules - Stored in HIS.SUBRTN4 Library

RLGRDQ
 RLGRD
 COINKEY
 KEYRLG
 RLGCVT

HIS31 Subsystem - Traffic

Source and Object Modules

Module Name	Language	Function
HIS31000	Assembler	TRFRDQ subroutine
HIS31001	Assembler	TRFRDQ interface
HIS31002	Assembler	TRFINB subroutine
HIS31003	Assembler	TRFRWB subroutine
HIS31010	Assembler	TRFRD subroutine
HIS31011	Assembler	TRFRD interface
HIS31020	Assembler	TRRRDQ subroutine
HIS31021	Assembler	TRRRDQ interface
HIS31022	Assembler	TRRWRQ subroutine
HIS31100	PL/I	VEHMLE subroutine
HIS31101	Assembler	ADT subroutine
HIS31200	PL/I	TRAFFIC-BY-SECTIONS
HIS31201	PL/I	SUMMARY-BY-ROUTES
HIS31202	PL/I	SUM-BY-COUNTY

HIS31400-HIS31499 - Reserved for use by Department of Highways

HIS31600	PL/I	CREATE-TRAFREP
HIS31601	PL/I	LIST-TRAFREP
HIS31700	PL/I	UPDATE FUNCTION=DELETE
HIS31701	PL/I	UPDATE FUNCTION=INSERT
HIS31702	PL/I	UPDATE FUNCTION=NEW-KEY
HIS31703	PL/I	UPDATE FUNCTION=REWRITE

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS31704	PL/I	UPDATE-BY-YEAR
HIS31710	PL/I	TRFRDC subroutine
HIS31711	PL/I	TRFCVT subroutine
HIS31712	PL/I	TRFEDIT subroutine
HIS31720	Assembler	COPY
HIS31721	Assembler	CREATE
HIS31722	Assembler	REORGANIZE
HIS31730	PL/I	DUMP
HIS31731	PL/I	LIST
HIS31732	PL/I	KEY-LIST
HIS31900	PL/I	TRAFFIC-TEST-00

Load Modules - Stored in HIS.REL4PT0 Library

<u>Module Name</u>	<u>Function</u>
HIS31000	TRFRDQ subroutine
HIS31010	TRFRD subroutine
HIS31020	TRRRDQ subroutine
HIS31200	TRAFFIC-BY-SECTIONS
HIS31201	SUMMARY-BY-ROUTES
HIS31202	SUM-BY-COUNTY
* HIS31600	CREATE-TRAFREP
HIS31601	LIST-TRAFREP
* HIS31700	UPDATE FUNCTION=DELETE
* HIS31701	UPDATE FUNCTION=INSERT
* HIS31702	UPDATE FUNCTION=NEW-KEY
* HIS31703	UPDATE FUNCTION=REWRITE
* HIS31704	UPDATE-BY-YEAR
* HIS31720	COPY
* HIS31721	CREATE
* HIS31722	REORGANIZE
HIS31730	DUMP
HIS31731	LIST
HIS31732	KEY-LIST
HIS31900	TRAFFIC-TEST-00

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

TRFRDQ	VEHMLE
TRFRD	ADT
TRRRDQ	TRFCVT

HIS32 Subsystem - True Mileage

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS32000	Assembler	TRMRDQ subroutine
HIS32001	Assembler	TRMRDQ interface
HIS32002	Assembler	TRMRDB subroutine
HIS32003	Assembler	TRMRDB interface
HIS32004	Assembler	TRMRDR subroutine
HIS32005	Assembler	TRMINB subroutine
HIS32006	Assembler	TRMRWB subroutine
HIS32007	Assembler	TRMRWQ subroutine
HIS32020	Assembler	POINTQ subroutine
HIS32021	Assembler	POINTQ interface
HIS32022	Assembler	POINTB subroutine
HIS32023	Assembler	POINTB interface
HIS32024	Assembler	DISTQ subroutine
HIS32025	Assembler	DISTQ interface
HIS32026	Assembler	DISTB subroutine
HIS32027	Assembler	DISTB interface
HIS32030	Assembler	TRMFILE address list

HIS32400-HIS32499 - Reserved for use by Department of Highways

HIS32700	PL/I	UPDATE FUNCTION=DELETE
HIS32701	PL/I	UPDATE FUNCTION=INSERT
HIS32703	PL/I	UPDATE FUNCTION=REWRITE
HIS32704	PL/I	UPDATE FUNCTION=SQL-REWRITE
HIS32710	PL/I	TRMRDC subroutine
HIS32711	PL/I	TRMCVT subroutine
HIS32712	PL/I	TRMEDIT subroutine
HIS32720	Assembler	COPY
HIS32721	Assembler	CREATE
HIS32722	Assembler	REORGANIZE
HIS32731	PL/I	LIST
HIS32740	PL/I	ROADLOG-TRUMILE-EDIT
HIS32900	PL/I	TRUMILE-TEST-00

Load Modules - Stored in HIS.REL4PT0 Library

<u>Module Name</u>	<u>Function</u>
HIS32000	File access subroutines
* HIS32700	UPDATE FUNCTION=DELETE
* HIS32701	UPDATE FUNCTION=INSERT
* HIS32703	UPDATE FUNCTION=REWRITE
* HIS32704	UPDATE FUNCTION=SQL-REWRITE

* Password protected.

Module Name	Function
* HIS32720	COPY
* HIS32721	CREATE
* HIS32722	REORGANIZE
HIS32731	LIST
HIS32740	ROADLOG-TRUMILE-EDIT
HIS32900	TRUMILE-TEST-00

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

TRMRDQ	DISTQ
TRMRDB	DISTB
POINTQ	TRMCVT
POINTB	

HIS33 Subsystem - Accident

Source and Object Modules

Module Name	Language	Function
HIS33000	Assembler	DACRDQ subroutine
HIS33001	Assembler	DACRDQ interface
HIS33002	Assembler	DACRDB subroutine
HIS33003	Assembler	DACRDB interface
HIS33010	Assembler	VACRDQ subroutine
HIS33011	Assembler	VACRDQ interface
HIS33012	Assembler	VACRDA subroutine
HIS33013	Assembler	VACRDA interface
HIS33020	Assembler	ACDRDQ subroutine
HIS33021	Assembler	ACDRDQ interface
HIS33022	Assembler	ACDWRQ subroutine
HIS33080	Assembler	ACCFILE address list
HIS33090	Assembler	ACCRD subroutine
HIS33091	Assembler	ACCRD interface
HIS33100	PL/I	PRNTDET subroutine
HIS33101	PL/I	PRNTVEH subroutine
HIS33102	Assembler	COPYACC subroutine
HIS33103	Assembler	CRTACC subroutine
HIS33200	PL/I	SUM-BY-DAY-&-TIME
HIS33201	PL/I	SUM-BY-CONTR-CIRC
HIS33202	PL/I	FORM-16 - mainline
HIS33203	PL/I	FORM16A subroutine
HIS33204	PL/I	FORM16B subroutine

Module Name	Language	Function
HIS33205	PL/I	SUM-BY-TRAFFICWAY - mainline
HIS33206	PL/I	SUM-BY-TRAFFICWAY - SUMTRFA subroutine
HIS33207	PL/I	SUM-BY-TRAFFICWAY - SUMTRFB subroutine
HIS33208	PL/I	SUM-BY-TRAFFICWAY - SUMTRFC subroutine
HIS33209	PL/I	MOTORCYCLE-SUMMARY - mainline
HIS33210	PL/I	MOTORCYCLE-SUMMARY - CYCLE1 subroutine
HIS33211	PL/I	MOTORCYCLE-SUMMARY - CYCLE2 subroutine
HIS33212	PL/I	MOTORCYCLE-SUMMARY - CYCLE3 subroutine
HIS33213	PL/I	COUNT-ACCIDENTS
HIS33214	PL/I	TA-1 - mainline
HIS33215	PL/I	TA-1 - SMATA1A subroutine
HIS33216	PL/I	TA-1 - SMATA1B subroutine
HIS33217	PL/I	TA-1 - SMATA1C subroutine
HIS33250	PL/I	ACCIDENT-BY-SECTIONS
HIS33310	PL/I	RURAL-ACC-CLUSTERS
HIS33311	PL/I	RURAL-ACC-ANALYSIS - mainline
HIS33312	PL/I	RURAL-ACC-ANALYSIS - DIAGRAM subroutine
HIS33313	PL/I	RURAL-ACC-ANALYSIS - SUMMARY subroutine
HIS33314	PL/I	RURAL-ACC-ANALYSIS - TRAFIC subroutine
HIS33320	PL/I	HIGH-ACC-INTERSECTNS - mainline
HIS33321	PL/I	HIGH-ACC-INTERSECTNS - INSCTNA subroutine
HIS33322	PL/I	HIGH-ACC-INTERSECTNS - INSCTNB subroutine
HIS33323	PL/I	HIGH-ACC-INTERSECTNS - INSCTNC subroutine
HIS33324	PL/I	HIGH-ACC-INTERSECTNS - INSCTND subroutine
HIS33400-HIS33499 - Reserved for use by Department of Highways		
HIS33500	PL/I	ACC-MILEPOINT-ADJUST - mainline
HIS33501	PL/I	ACC-MILEPOINT-ADJUST - ADJUSTE subroutine
HIS33502	PL/I	ACC-MILEPOINT-ADJUST - ADJUSTC subroutine
HIS33503	PL/I	ACC-MILEPOINT-ADJUST - ADJUSTU subroutine
HIS33600	PL/I	CREATE-ACC-BY-SECTN - mainline
HIS33601	PL/I	CREATE-ACC-BY-SECTN - AREP1 subroutine
HIS33602	PL/I	CREATE-ACC-BY-SECTN - AREP2 subroutine
HIS33620	PL/I	LIST-ACC-BY-SECTN
HIS33630	PL/I	CREATE-FA-ACC-DIREC - mainline
HIS33631	Assembler	CREATE-FA-ACC-DIREC - DIRCRT subroutine
HIS33632	PL/I	CREATE-FA-ACC-DIREC - DIRSORT subroutine
HIS33633	Assembler	CREATE-FA-ACC-DIREC - DIRLOAD subroutine
HIS33640	PL/I	LIST-FA-ACC-DIREC
HIS33700	PL/I	UPDATE FUNCTION=DELETE
HIS33701	PL/I	UPDATE FUNCTION=INSERT
HIS33703	PL/I	UPDATE FUNCTION=REWRITE
HIS33712	PL/I	ACCEDIT subroutine
HIS33713	PL/I	ACCED2 subroutine
HIS33714	PL/I	RDACCED subroutine
HIS33715	Assembler	CVTACC subroutine

Module Name	Language	Function
HIS33720	PL/I	COPY
HIS33721	PL/I	CREATE
HIS33722	PL/I	REORGANIZE
HIS33731	PL/I	LIST
HIS33732	PL/I	PRINT-MEMOS - mainline
HIS33733	PL/I	PRINT-MEMOS - PMEMO subroutine
HIS33734	PL/I	RESTART-MEMOS
HIS33735	PL/I	EDIT
HIS33820	PL/I	COPY-ACC-FILES
HIS33900	PL/I	ACCIDENT-TEST-00
HIS33911	PL/I	ACCIDENT-TEST-11

Load Modules - Stored in HIS.REL4PT0 Library

Module Name	Function
HIS33080	Accident file access routines
HIS33090	ACCRD subroutine
HIS33200	SUM-BY-DAY-&-TIME
HIS33201	SUM-BY-CONTR-CIRC
HIS33202	FORM-16
HIS33205	SUM-BY-TRAFFICWAY
HIS33209	MOTORCYCLE-SUMMARY
HIS33213	COUNT-ACCIDENTS
HIS33214	TA-1
HIS33250	ACCIDENT-BY-SECTIONS
HIS33310	RURAL-ACC-CLUSTERS
HIS33311	RURAL-ACC-ANALYSIS
HIS33320	HIGH-ACC-INTERSECTNS
* HIS33500	ACC-MILEPOINT-ADJUST
* HIS33600	CREATE-ACC-BY-SECTN
HIS33620	LIST-ACC-BY-SECTN
* HIS33630	CREATE-FA-ACC-DIREC
HIS33640	LIST-FA-ACC-DIREC
* HIS33700	UPDATE FUNCTION=DELETE
* HIS33701	UPDATE FUNCTION=INSERT
* HIS33703	UPDATE FUNCTION=REWRITE
* HIS33720	COPY
* HIS33721	CREATE
* HIS33722	REORGANIZE
HIS33731	LIST
* HIS33732	PRINT-MEMOS
* HIS33734	RESTART-MEMOS
HIS33735	EDIT
HIS33900	ACCIDENT-TEST-00
HIS33911	ACCIDENT-TEST-11

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

DACRDQ
DACRDB
VACRDQ
VACRDA
ACDRDQ
ACCRD
CVTACC

HIS34 Subsystem - Sufficiency

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS34000	Assembler	SUFRDQ subroutine
HIS34001	Assembler	SUFRDQ interface
HIS34002	Assembler	SUFINB subroutine
HIS34003	Assembler	SUFRWB subroutine
HIS34010	Assembler	SUFRD subroutine
HIS34011	Assembler	SUFRD interface
HIS34020	Assembler	SFRRDQ subroutine
HIS34021	Assembler	SFRRDQ interface
HIS34022	Assembler	SFRWRQ subroutine
HIS34100	PL/I	PRNTSFR subroutine
HIS34101	PL/I	SREPSRT subroutine
HIS34200	PL/I	LIST-BY-SECTION
HIS34201	PL/I	LIST-BY-DISTRICT
HIS34202	PL/I	LIST-BY-RATING
HIS34203	PL/I	MAP-TABLES
HIS34204	PL/I	RATING-BY-DISTRICT
HIS34205	PL/I	DEF-MILES-BY-COUNTY

HIS34400-HIS34499 - Reserved for use by the Department of Highways

HIS34600	PL/I	CREATE-SUFFREP - mainline
HIS34601	PL/I	CREATE-SUFFREP - SREPSUF subroutine
HIS34602	PL/I	CREATE-SUFFREP - SREPLG subroutine
HIS34603	PL/I	CREATE-SUFFREP - SREPTRF subroutine
HIS34604	PL/I	CREATE-SUFFREP - SREPACC subroutine
HIS34605	PL/I	CREATE-SUFFREP - SREPCAL subroutine
HIS34606	PL/I	CREATE-SUFFREP - SREPLOD subroutine
HIS34607	PL/I	CREATE-SUFFREP - SREPERR subroutine
HIS34608	PL/I	CREATE-SUFFREP - SREPIN subroutine
HIS34609	PL/I	CREATE-SUFFREP - SREPOUT subroutine
HIS34620	PL/I	LIST-SUFFREP

Module Name	Language	Function
HIS34700	PL/I	UPDATE FUNCTION=DELETE
HIS34701	PL/I	UPDATE FUNCTION=INSERT
HIS34702	PL/I	UPDATE FUNCTION=NEW-KEY
HIS34703	PL/I	UPDATE FUNCTION=REWRITE
HIS34710	PL/I	SUFRDC subroutine
HIS34711	PL/I	SUFCVT subroutine
HIS34712	PL/I	SUFEDIT subroutine
HIS34720	Assembler	COPY
HIS34721	Assembler	CREATE
HIS34722	Assembler	REORGANIZE
HIS34731	PL/I	LIST

Load Modules - Stored in HIS.REL4PT0 Library

Module Name	Function
HIS34000	SUFRDQ subroutine
HIS34010	SUFRD subroutine
HIS34020	SFRRDQ subroutine
HIS34200	LIST-BY-SECTION
HIS34201	LIST-BY-DISTRICT
HIS34202	LIST-BY-RATING
HIS34203	MAP-TABLES
HIS34204	RATING-BY-DISTRICT
HIS34205	DEF-MILES-BY-COUNTY
* HIS34600	CREATE-SUFFREP
HIS34620	LIST-SUFFREP
* HIS34700	UPDATE FUNCTION=DELETE
* HIS34701	UPDATE FUNCTION=INSERT
* HIS34702	UPDATE FUNCTION=NEW-KEY
* HIS34703	UPDATE FUNCTION=REWRITE
* HIS34720	COPY
* HIS34721	CREATE
* HIS34722	REORGANIZE
HIS34731	LIST

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

SUFRDQ
SUFRD
SFRRDQ
PRNTSFR
SREPSRT

HIS35 Subsystem - Bridge

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS35000	Assembler	BDGRDQ subroutine
HIS35001	Assembler	BDGRDQ interface
HIS35002	PL/I	BDGINB subroutine
HIS35003	PL/I	BDGRWB subroutine
HIS35010	Assembler	BDGRD subroutine
HIS35011	Assembler	BDGRD interface
HIS35020	Assembler	BDRRDQ subroutine
HIS35100	Assembler	BDGIRTE subroutine
HIS35101	Assembler	BDGTYPE subroutine
HIS35102	Assembler	BDGSRTE subroutine
HIS35103	Assembler	BDGDLOD subroutine
HIS35110	Assembler	DEFRDI subroutine
HIS35111	Assembler	DEFPNT subroutine
HIS35200	PL/I	BDG-INVENTORY-LIST
HIS35220	PL/I	DEFENSE-BDG-LIST
HIS35221	PL/I	PRE-ATTACK-BDG-TAPE
HIS35222	PL/I	SUM-BY-DESIGN-LOAD
HIS35223	PL/I	DEFENSE-MILEAGE
HIS35230	PL/I	BDG-INSPECTION-TAPE
HIS35400-HIS35499 - Reserved for use by the Department of Highways		
HIS35600	PL/I	CREATE-BDGREP
HIS35601	PL/I	LIST-BDGREP
HIS35610	PL/I	DEFENSE-XREF
HIS35700	PL/I	UPDATE FUNCTION=DELETE
HIS35701	PL/I	UPDATE FUNCTION=INSERT
HIS35702	PL/I	UPDATE FUNCTION=NEW-KEY
HIS35703	PL/I	UPDATE FUNCTION=REWRITE
HIS35710	PL/I	BDGRDC subroutine
HIS35711	PL/I	BDGCVT subroutine
HIS35712	PL/I	BDGEDIT subroutine
HIS35720	Assembler	COPY
HIS35721	Assembler	CREATE
HIS35722	Assembler	REORGANIZE
HIS35731	PL/I	LIST
HIS35900	PL/I	BRIDGE-TEST-00

Load Modules - Stored in HIS.REL4PT0 Library

<u>Module</u> <u>Name</u>	<u>Function</u>
HIS35000	BDGRDQ subroutine
HIS35010	BDGRD subroutine
HIS35200	BDG-INVENTORY-LIST
HIS35220	DEFENSE-BDG-LIST
HIS35221	PRE-ATTACK-BDG-TAPE
HIS35222	SUM-BY-DESIGN-LOAD
HIS35223	DEFENSE-MILEAGE
HIS35230	BDG-INSPECTION-TAPE
* HIS35600	CREATE-BDGREP
HIS35601	LIST-BDGREP
* HIS35610	DEFENSE-XREF
* HIS35700	UPDATE FUNCTION=DELETE
* HIS35701	UPDATE FUNCTION=INSERT
* HIS35702	UPDATE FUNCTION=NEW-KEY
* HIS35703	UPDATE FUNCTION=REWRITE
* HIS35720	COPY
* HIS35721	CREATE
* HIS35722	REORGANIZE
HIS35731	LIST
HIS35900	BRIDGE-TEST-00

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

BDGRDQ	BDGTYPE	DEFPNT
BDGRD	BDGS RTE	BDGCVT
BDRRDQ	BDGDLOD	
BDGIRTE	DEFRDI	

HIS36 Subsystem - Railroad

Source and Object Modules

<u>Module</u> <u>Name</u>	<u>Language</u>	<u>Function</u>
HIS36000	Assembler	RRXRDQ subroutine
HIS36001	Assembler	RRXRDQ interface
HIS36002	Assembler	RRXINB subroutine
HIS36003	Assembler	RRXRWB subroutine
HIS36010	Assembler	RRXRD subroutine
HIS36011	Assembler	RRXRD interface
HIS36022	Assembler	RRXWRQ subroutine

Module Name	Language	Function
HIS36400-HIS36499 - Reserved for use by the Department of Highways		
HIS36600	PL/I	CREATE-RRXREP
HIS36620	Assembler	RRXREP-SORT-LIST
HIS36700	PL/I	UPDATE FUNCTION=DELETE
HIS36701	PL/I	UPDATE FUNCTION=INSERT
HIS36702	PL/I	UPDATE FUNCTION=NEW-KEY
HIS36703	PL/I	UPDATE FUNCTION=REWRITE
HIS36710	PL/I	RRXRDC subroutine
HIS36711	PL/I	RRXCVT subroutine
HIS36712	PL/I	RRXEDIT subroutine
HIS36720	Assembler	COPY
HIS36721	Assembler	CREATE
HIS36722	Assembler	REORGANIZE
HIS36731	PL/I	LIST

Load Modules - Stored in HIS.REL4PT0 Library

Module Name	Function
HIS36000	RRXRDC subroutine
HIS36010	RRXRD subroutine
* HIS36600	CREATE-RRXREP
HIS36620	RRXREP-SORT-LIST
* HIS36700	UPDATE FUNCTION=DELETE
* HIS36701	UPDATE FUNCTION=INSERT
* HIS36702	UPDATE FUNCTION=NEW-KEY
* HIS36703	UPDATE FUNCTION=REWRITE
* HIS36720	COPY
* HIS36721	CREATE
* HIS36722	REORGANIZE
HIS36731	LIST

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

RRXRDC
RRXRD
RRXCVT

HIS37 Subsystem - Miscellaneous Files

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS37100	PL/I	GRIDSEP subroutine
HIS37200	PL/I	GRIDTBL-SORT-&-LIST
HIS37201	PL/I	GRIDTBL-CODING-SHEET
HIS37500	PL/I	EDIT-GRIDTBL
HIS37600	PL/I	CITY-ROUTE-XREF
HIS37610	PL/I	BUILD-GRID-TABLE
HIS37611	PL/I	LIST-GRID-TABLE

Load Modules - Stored in HIS.REL4PT0 Library

<u>Module Name</u>	<u>Function</u>
HIS37200	GRIDTBL-SORT-&-LIST
HIS37201	GRIDTBL-CODING-SHEET
HIS37500	EDIT-GRIDTBL
* HIS37600	CITY-ROUTE-XREF
* HIS37610	BUILD-GRID-TABLE
HIS37611	LIST-GRID-TABLE

* Password protected

Load Modules - Stored in HIS.SUBRTN4 Library

GRIDSEP

HIS38 Subsystem - Urban Sign Inventory

Source and Object Modules

<u>Module Name</u>	<u>Language</u>	<u>Function</u>
HIS38000	Assembler	USNRDQ subroutine
HIS38001	Assembler	USNRDQ interface
HIS38010	Assembler	USNRD subroutine
HIS38011	Assembler	USNRD interface
HIS38100	PL/I	USNXY subroutine
HIS38101	Assembler	CALCAGE subroutine
HIS38102	PL/I	SGNXCHK subroutine
HIS38103	PL/I	EDITSGN subroutine

Module Name	Language	Function
HIS38200	PL/I	LIST-SIGNS-BY-STREET - mainline
HIS38202	PL/I	LIST-SIGNS-BY-STREET - SIGNS subroutine
HIS38204	PL/I	SUMMARY-BY-CONDITION - mainline
HIS38205	PL/I	SUMMARY-BY-CONDITION - SUMCNDA subroutine
HIS38206	PL/I	SUMMARY-BY-CONDITION - SUMCNDB subroutine
HIS38207	PL/I	SUMMARY-BY-CONDITION - SUMCNDC subroutine
HIS38208	PL/I	SUMMARY-BY-SIGN-CODE - mainline
HIS38209	PL/I	SUMMARY-BY-SIGN-CODE - SUMCODA subroutine
HIS38210	PL/I	SUMMARY-BY-SIGN-CODE - SUMCODB subroutine
HIS38211	PL/I	SUMMARY-BY-DATE - mainline
HIS38212	PL/I	SUMMARY-BY-DATE - SUMDATA subroutine
HIS38213	PL/I	SUMMARY-BY-DATE - SUMDATB subroutine
HIS38214	PL/I	SUMMARY-BY-DATE - SUMDATC subroutine
HIS38400-HIS38499 - Reserved for use by the Department of Highways		
HIS38600	PL/I	SIGN-CODE-XREF
HIS38700	PL/I	UPDATE FUNCTION=DELETE
HIS38701	PL/I	UPDATE FUNCTION=INSERT - mainline
HIS38702	PL/I	UPDATE FUNCTION=NEW-KEY
HIS38703	PL/I	UPDATE FUNCTION=REWRITE
HIS38704	PL/I	PURGE
HIS38705	PL/I	UPDATE FUNCTION=INSERT - USNINST subroutine
HIS38710	PL/I	USNCOPY subroutine
HIS38711	PL/I	USNCVT subroutine
HIS38712	PL/I	USNED1 subroutine
HIS38714	PL/I	USNEDRD subroutine
HIS38715	PL/I	USNEDIN subroutine
HIS38716	PL/I	USNEDER subroutine
HIS38722	PL/I	REORGANIZE
HIS38731	PL/I	LIST
HIS38790	PL/I	GREAT-FALLS-LOAD
HIS38900	PL/I	USNRDQ-TEST
HIS38901	PL/I	USNRD-TEST

Load Modules - Stored in HIS.REL4PT0 Library

Module Name	Function
HIS38000	USNRDQ subroutine
HIS38010	USNRD subroutine
HIS38200	LIST-SIGNS-BY-STREET
HIS38204	SUMMARY-BY-CONDITION
HIS38208	SUMMARY-BY-SIGN-CODE
HIS38211	SUMMARY-BY-DATE
* HIS38600	SIGN-CODE-XREF

(continued on next page)

Module Name	Function
* HIS38700	UPDATE FUNCTION=DELETE
* HIS38701	UPDATE FUNCTION=INSERT
* HIS38702	UPDATE FUNCTION=NEW-KEY
* HIS38703	UPDATE FUNCTION=REWRITE
* HIS38704	PURGE
* HIS38722	REORGANIZE
HIS38731	LIST
* HIS38790	GREAT-FALLS-LOAD
HIS38900	USNRDQ-TEST
HIS38901	USNRD-TEST

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

USNRDQ
USNRD
CALCAGE

HIS39 Subsystem - Skid

Source and Object Modules

Module Name	Language	Function
HIS39000	Assembler	SKDRDQ subroutine
HIS39001	Assembler	SKDRDQ interface
HIS39002	Assembler	SKDWRQ subroutine
HIS39003	Assembler	SKDWRQ interface
HIS39004	Assembler	SKDUPD subroutine
HIS39005	Assembler	SKDUPD interface
HIS39006	Assembler	SKDCMPR subroutine
HIS39007	Assembler	SKDDCB subroutine
HIS39008	Assembler	SKDFILE address list
HIS39010	Assembler	SKDRD subroutine
HIS39011	Assembler	SKDRD interface
HIS39100	PL/I	SKDOPT subroutine
HIS39200	PL/I	LOW-SKID-NUMBERS

HIS39400-HIS39499 - Reserved for use by the Department of Highways

HIS39700	PL/I	UPDATE FUNCTION=DELETE
HIS39701	PL/I	UPDATE FUNCTION=INSERT
HIS39702	PL/I	UPDATE FUNCTION=NEW-KEY
HIS39703	PL/I	UPDATE FUNCTION=REWRITE

Module Name	Language	Function
HIS39708	PL/I	SKID-LOAD
HIS39710	PL/I	SKDRDC subroutine
HIS39711	PL/I	SKDCVT subroutine
HIS39712	PL/I	SKDEDIT subroutine
HIS39713	PL/I	SKDED1 subroutine
HIS39714	PL/I	SKDED2 subroutine
HIS39722	PL/I	REORGANIZE
HIS39731	PL/I	LIST
HIS39735	PL/I	EDIT
HIS39799	PL/I	SKID-CARD-CONVERT
HIS39900	PL/I	SKID-TEST-00
HIS39901	PL/I	SKID-TEST-01

Load Modules - Stored in HIS.REL4PT0 Library

Module Name	Function
HIS39008	Skid file access subroutines
HIS39010	SKDRD subroutine
HIS39200	LOW-SKID-NUMBERS
* HIS39700	UPDATE FUNCTION=DELETE
* HIS39701	UPDATE FUNCTION=INSERT
* HIS39702	UPDATE FUNCTION=NEW-KEY
* HIS39703	UPDATE FUNCTION=REWRITE
* HIS39708	SKID-LOAD
* HIS39722	REORGANIZE
HIS39731	LIST
HIS39735	EDIT
HIS39799	SKID-CARD-CONVERT
HIS39900	SKID-TEST-00
HIS39901	SKID-TEST-01

* Password protected.

Load Modules - Stored in HIS.SUBRTN4 Library

SKDRDQ
SKDWRQ
SKDUPD
SKDRD
SKDOPT
SKDCVT

APPENDIX B

LOAD MODULE SUMMARY

The load module summary in this appendix is a computer listing of a file prepared to allow the generation of the source module cross-reference in appendix C. This file was coded from the documentation of load modules in this manual.

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	---- SOURCE MODULES ----
HIS20000	HIS		HIS20000 HIS20001 HIS20002 HIS20003 HIS20004 HIS20005 HIS20006 HIS20007
HIS20100	DECODER		HIS20050 HIS20053 HIS20058 HIS20100 HIS20101 HIS20102 HIS20103 HIS20104 HIS20105 HIS20106 HIS20107 HIS20902 HIS20907 HIS20909
HIS20200	INITIAL		HIS20200 HIS20909
HIS20400	ENTRY		HIS20400 HIS20401
HIS21000	PLISTART		HIS20050 HIS20053 HIS20058 HIS21000
HIS21001	PLISTART		HIS20050 HIS20053 HIS20055 HIS20056 HIS20058 HIS21001
HIS21010	PLISTART		HIS20050 HIS20053 HIS20058 HIS21010
HIS21011	PLISTART		HIS20050 HIS20053 HIS20055 HIS20058 HIS21011
HIS21020	PLISTART		HIS20050 HIS20053 HIS20055 HIS20058 HIS21020
HIS21030	PLISTART		HIS20050 HIS20053 HIS20058 HIS21030
HIS21031	PLISTART		HIS20050 HIS20053 HIS20055 HIS20058 HIS21031
HIS21040	PLISTART		HIS20050 HIS20053 HIS20058 HIS21040
HIS21041	PLISTART		HIS20050 HIS20053 HIS20055 HIS20058 HIS21041
HIS21050	PLISTART		HIS20050 HIS20053 HIS20058 HIS21050
HIS21051	PLISTART		HIS20050 HIS20053 HIS20055 HIS20058 HIS21051
HIS21060	FTLIST		HIS20050 HIS20053 HIS20058 HIS21060 HIS21063
HIS21061	PLISTART		HIS20050 HIS20052 HIS20054 HIS20057 HIS20058 HIS21061
HIS21062	FTBJLD		HIS20050 HIS20055 HIS20058 HIS21062 HIS21063 HIS21064
HIS21070	PLISTART		HIS20050 HIS20053 HIS20055 HIS20057 HIS20058 HIS21070
HIS21080	PLISTART		HIS20050 HIS20053 HIS20058 HIS21080
HIS21081	PLISTART		HIS20050 HIS20053 HIS20055 HIS20058 HIS21081

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	---- SOURCE MODULES ----
HIS21090	PLISTART		HIS20050 HIS20053 HIS20058 HIS21090
HIS21091	PLISTART		HIS20050 HIS20053 HIS20058 HIS21091
HIS21110	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21110 HIS21112 HIS30001 HIS30100
HIS21130	PLISTART		HIS20050 HIS20053 HIS20055 HIS20057 HIS20058 HIS21130
HIS21140	PLISTART		HIS20050 HIS20053 HIS20058 HIS21140
HIS21141	PLISTART		HIS20050 HIS20053 HIS20055 HIS20058 HIS21141
HIS21900	PLISTART		HIS20050 HIS20054 HIS20056 HIS20058 HIS21900
HIS21901	PLISTART		HIS20050 HIS20052 HIS20056 HIS20058 HIS21901
HIS21902	PLISTART		HIS20050 HIS20052 HIS20054 HIS20057 HIS20058 HIS21902
HIS21903	MODPDS		HIS20050 HIS20056 HIS20058 HIS21903
HIS22000	SELTESTE	SELTEST	HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20903 HIS21012 HIS21013 HIS21033 HIS21042 HIS21142 HIS21144 HIS22000 HIS22010 HIS22011 HIS22012 HIS22013 HIS22014 HIS22020 HIS22021 HIS22030 HIS22031 HIS30001 HIS31001 HIS33003 HIS33013
HIS22200	PLISTART		HIS20050 HIS20053 HIS20058 HIS22200
HIS23010	PLISTART		HIS20050 HIS20058 HIS23010
HIS23020	PLISTART		HIS20050 HIS20051 HIS20058 HIS20902 HIS20907 HIS20909 HIS23020 HIS23021
HIS23023	PLISTART		HIS23023
HIS23024	PLISTART		HIS20050 HIS20054 HIS20057 HIS20058 HIS23024
HIS23030	PLISTART		HIS20050 HIS20056 HIS20058 HIS20902 HIS20907 HIS20909 HIS20980 HIS23030
HIS23031	PLISTART		HIS20050 HIS20056 HIS20058 HIS20902 HIS20907 HIS20909 HIS20980 HIS20981 HIS20982 HIS23031
HIS23040	PLISTART		HIS20050 HIS20058 HIS20902 HIS20907 HIS20909 HIS20982 HIS23040

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
HIS23041	PLISTART		HIS20050 HIS20058 HIS20902 HIS20907 HIS20909 HIS20982 HIS20983 HIS23041
HIS23050	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS23050
HIS000PY	HIS00PY		HIS23060 HIS20909 HIS23050
PRNT133	PRNT133		HIS23061 HIS20909 HIS23050
HIS23071	PLISTART		HIS20050 HIS20056 HIS20053 HIS20902 HIS20907 HIS20909 HIS20980 HIS23071
HIS23080	PLISTART		HIS20050 HIS20052 HIS20058 HIS23080
HIS23090	COPYSEQ		HIS20050 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS23090
HIS30000	RLGRDE	RLGRDE	HIS20050 HIS20058 HIS20905 HIS30000
HIS30010	RLGRDE	RLGRD	HIS20050 HIS20051 HIS20058 HIS20905 HIS22001 HIS30001 HIS30010
HIS30200	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS21042 HIS21142 HIS30011 HIS30100 HIS30200
HIS30201	PLISTART		HIS20050 HIS20051 HIS20058 HIS30001 HIS30201
HIS30202	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS21032 HIS21033 HIS21042 HIS21142 HIS30011 HIS30100 HIS30202 HIS30203 HIS30204 HIS30205
HIS30206	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS211+2 HIS30001 HIS30100 HIS30206 HIS30207 HIS30208 HIS30209
HIS30210	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS211+2 HIS30001 HIS30210 HIS30211 HIS30212
HIS30300	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS30011 HIS30300
HIS30301	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS30011 HIS30301 HIS31001
HIS30302	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS30011 HIS30302 HIS31001
HIS30700	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS30003 HIS30700
HIS30701	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
			HIS20057 HIS20058 HIS20902 HIS20903 HIS21012 HIS21032 HIS21042 HIS30002 HIS30701 HIS30710 HIS30711 HIS30712 HIS32023
HIS30702	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS30002 HIS30702
HIS30703	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS20057 HIS20058 HIS20902 HIS20903 HIS21012 HIS21032 HIS21042 HIS21065 HIS30003 HIS30703 HIS30710 HIS30711 HIS30712 HIS32023
HIS30720	COPY		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS30720
HIS30721	CREATE		HIS20050 HIS20057 HIS20058 HIS20905 HIS20991 HIS30721
HIS30722	REORG		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS20991 HIS30722
HIS30730	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS21032 HIS30011 HIS30711 HIS30730
HIS30731	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS21042 HIS30011 HIS30100 HIS30731
HIS30732	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS30001 HIS30100 HIS30732
HIS30735	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS20058 HIS20902 HIS20903 HIS21012 HIS21032 HIS21042 HIS30011 HIS30712 HIS30735 HIS32023
HIS31000	TRFRDQE	TRFRDQ	HIS20050 HIS20058 HIS20905 HIS31000
HIS31010	TRFRDE	TRFRD	HIS20050 HIS20051 HIS20058 HIS20905 HIS22001 HIS31001 HIS31010
HIS31020	TRRRDQE	TRRRDQ	HIS20050 HIS20058 HIS20905 HIS31020
HIS31200	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21142 HIS30001 HIS31021 HIS31200
HIS31201	PLISTART		HIS20050 HIS20051 HIS20058 HIS31021 HIS31201
HIS31202	PLISTART		HIS20050 HIS20051 HIS20058 HIS30001 HIS31021 HIS31202
HIS31600	PLISTART		HIS20050 HIS20051 HIS20058 HIS31001 HIS31022 HIS31000 HIS32021

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
HIS31601	PLISTART		HIS20050 HIS20051 HIS20058 HIS21021 HIS21601
HIS31700	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS31003 HIS31700 HIS31710
HIS31701	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS20903 HIS31002 HIS31701 HIS31710 HIS31711 HIS31712
HIS31702	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS31002 HIS31702 HIS31710
HIS31703	PLISTART		HIS20050 HIS20053 HIS20057 HIS20058 HIS20902 HIS20903 HIS21065 HIS31003 HIS31703 HIS31710 HIS31711 HIS31712
HIS31704	PLISTART		HIS20050 HIS20058 HIS20902 HIS31704
HIS31720	COPY		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS31720
HIS31721	CREATE		HIS20050 HIS20057 HIS20058 HIS20905 HIS20991 HIS31721
HIS31722	REORG		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS20991 HIS31722
HIS31730	PLISTART		HIS20050 HIS20051 HIS20058 HIS31011 HIS31711 HIS31730
HIS31731	PLISTART		HIS20050 HIS20051 HIS20058 HIS30001 HIS31011 HIS31731 HIS32021
HIS31732	PLISTART		HIS20050 HIS20051 HIS20058 HIS31001 HIS31732
HIS32030	TRMFILE	TRMFILE	HIS20050 HIS20058 HIS20905 HIS32000 HIS32002 HIS32004 HIS32020 HIS32022 HIS32024 HIS32026 HIS32030
HIS32700	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS32006 HIS32700 HIS32710
HIS32701	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS20903 HIS32005 HIS32701 HIS32710 HIS32711 HIS32712
HIS32703	PLISTART		HIS20050 HIS20053 HIS20057 HIS20058 HIS20902 HIS20903 HIS21065 HIS32006 HIS32703 HIS32710 HIS32711 HIS32712
HIS32704	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS20903 HIS32007 HIS32704 HIS32710
HIS32720	COPY		HIS20050 HIS20057 HIS20058 HIS20902

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	---- SOURCE MODULES ----
			HIS20905 HIS20990 HIS32720
HIS32721	CREATE		HIS20050 HIS20057 HIS20058 HIS20905 HIS20991 HIS32721
HIS32722	REORG		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS20991 HIS32722
HIS32731	PLISTART		HIS20050 HIS20051 HIS20058 HIS32001 HIS32731
HIS32740	PLISTART		HIS20050 HIS20051 HIS20058 HIS30001 HIS30100 HIS32021 HIS32740
HIS33030	ACCFILE	ACCFILE	HIS20050 HIS20058 HIS20905 HIS33000 HIS33002 HIS33010 HIS33012 HIS33020 HIS33080
HIS33090	ACCRDE	ACCRD	HIS20050 HIS20051 HIS20053 HIS20058 HIS20904 HIS20905 HIS22001 HIS33001 HIS33003 HIS33011 HIS33013 HIS33021 HIS33090
HIS33200	PLISTART		HIS20050 HIS20051 HIS20058 HIS20901 HIS33091 HIS33200
HIS33201	PLISTART		HIS20050 HIS20051 HIS20058 HIS33091 HIS33201
HIS33202	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS33091 HIS33202 HIS33203 HIS33204
HIS33205	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS20900 HIS20901 HIS21142 HIS33091 HIS33205 HIS33206 HIS33207 HIS33208
HIS33209	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS20901 HIS21012 HIS21142 HIS33091 HIS33209 HIS33210 HIS33211 HIS33212
HIS33213	PLISTART		HIS20050 HIS20051 HIS20058 HIS33091 HIS33213
HIS33214	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS33001 HIS33091 HIS33214 HIS33215 HIS33216 HIS33217
HIS33250	PLISTART		HIS20050 HIS20053 HIS20058 HIS21012 HIS33250
HIS33310	PLISTART		HIS20050 HIS20051 HIS20058 HIS20902 HIS20907 HIS20909 HIS31001 HIS32021 HIS33091 HIS33310
HIS33311	PLISTART		HIS20050 HIS20058 HIS20901 CALJUL

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
			HIS33311 HIS33312 HIS33313 HIS33314
HIS33320	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20901 HIS21013 HIS33013 HIS33091 HIS33320 HIS33321 HIS33322 HIS33323 HIS33324
HIS33500	PLISTART		HIS20050 HIS20051 HIS20057 HIS20058 HIS20902 HIS20903 HIS20907 HIS20909 HIS32021 HIS33021 HIS33500 HIS33501 HIS33502 HIS33503 HIS33500 HIS33501 HIS33502 HIS33503
HIS33600	PLISTART		HIS20050 HIS20051 HIS20058 HIS20901 HIS30001 HIS31001 HIS31100 HIS32025 HIS33003 HIS33021 HIS33600 HIS33601 HIS33602
HIS33620	PLISTART		HIS20050 HIS20058 HIS33620
HIS33630	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21112 HIS21113 HIS30001 HIS30100 HIS32021 HIS33003 HIS33022 HIS33630 HIS33631 HIS33632 HIS33633
HIS33640	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS33091 HIS33640
HIS33700	PLISTART		HIS20050 HIS20058 HIS33700
HIS33701	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS20057 HIS20058 HIS20903 HIS21016 HIS21142 HIS30001 HIS30101 HIS32021 HIS33701 HIS33712 HIS33713 HIS33714 HIS33715
HIS33703	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS20058 HIS20903 HIS21016 HIS21142 HIS30001 HIS30101 HIS32021 HIS33703 HIS33712 HIS33713 HIS33714 HIS33715
HIS33720	PLISTART		HIS20050 HIS20058 HIS33102 HIS33720
HIS33721	PLISTART		HIS20050 HIS20058 HIS33103 HIS33721
HIS33722	PLISTART		HIS20050 HIS20058 HIS33102 HIS33103 HIS33722
HIS33731	PLISTART		HIS20050 HIS20051 HIS20058 HIS20901 HIS33091 HIS33100 HIS33101 HIS33715 HIS33731
HIS33732	PLISTART		HIS20050 HIS20053 HIS20058 HIS21012 HIS21142 HIS33732 HIS33733
HIS33734	PLISTART		HIS20050 HIS20053 HIS20058 HIS21012

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
			HIS21142 HIS33734
HIS33735	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS20058 HIS20902 HIS20903 HIS20907 HIS20909 HIS21016 HIS21142 HIS30001 HIS30101 HIS32021 HIS33091 HIS33712 HIS33713 HIS33714 HIS33715 HIS33735
HIS34000	SUFRDQE	SUFRDQ	HIS20050 HIS20058 HIS20905 HIS34000
HIS34010	SUFRDE	SUFRD	HIS20050 HIS20051 HIS20058 HIS20905 HIS22001 HIS34001 HIS34010
HIS34020	SFRRDQE	SFRRDQ	HIS20050 HIS20058 HIS20905 HIS34020
HIS34200	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS21142 HIS30001 HIS34021 HIS34200
HIS34201	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21142 HIS34021 HIS34101 HIS34201
HIS34202	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21142 HIS34021 HIS34101 HIS34202
HIS34203	PLISTART		HIS20050 HIS20051 HIS20058 HIS34021 HIS34203
HIS34204	PLISTART		HIS20050 HIS20051 HIS20058 HIS34021 HIS34204
HIS34205	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21142 HIS34021 HIS34205
HIS34600	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21042 HIS21052 HIS21142 HIS30001 HIS31001 HIS31021 HIS31100 HIS32025 HIS33021 HIS34001 HIS34021 HIS34022 HIS34100 HIS34600 HIS34601 HIS34602 HIS34603 HIS34604 HIS34605 HIS34606 HIS34607 HIS34608 HIS34609
HIS34620	PLISTART		HIS20050 HIS20051 HIS20058 HIS34021 HIS34100 HIS34620
HIS34700	PLISTART		HIS20050 HIS20058 HIS20902 HIS34003 HIS34700 HIS34710
HIS34701	PLISTART		HIS20050 HIS20058 HIS20902 HIS20902 HIS34002 HIS34701 HIS34710 HIS34711 HIS34712
HIS34702	PLISTART		HIS20050 HIS20058 HIS20902 HIS34002 HIS34702 HIS34710
HIS34703	PLISTART		HIS20050 HIS20053 HIS20058 HIS20902

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	---- SOURCE MODULES ----
			HIS20903 HIS21055 HIS34003 HIS34703 HIS34710 HIS34711 HIS34712
HIS34720	COPY		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS34720
HIS34721	CREATE		HIS20050 HIS20057 HIS20058 HIS20905 HIS20991 HIS34721
HIS34722	REORG		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS20991 HIS34722
HIS34731	PLISTART		HIS20050 HIS20051 HIS20058 HIS34011 HIS34731
HIS35000	BDGRDQE	BDGRDQ	HIS20050 HIS20058 HIS20905 HIS35000
HIS35010	BDGRDE	BDGRD	HIS20050 HIS20051 HIS20058 HIS20905
HIS35010			HIS22001 HIS35001 HIS35010
HIS35200	PLISTART		HIS20050 HIS20051 HIS20058 HIS30001 HIS31001 HIS31101 HIS32027 HIS35001 HIS35101 HIS35102 HIS35200
HIS35220	PLISTART		HIS20050 HIS20053 HIS20058 HIS21012 HIS35020 HIS35220
HIS35221	PLISTART		HIS20050 HIS20057 HIS20058 HIS35020 HIS35221
HIS35222	PLISTART		HIS20050 HIS20058 HIS35020 HIS35222
HIS35223	PLISTART		HIS20050 HIS20051 HIS20058 HIS32025 HIS35223
HIS35230	PLISTART		HIS20050 HIS20051 HIS20058 HIS30001 HIS31001 HIS31101 HIS32025 HIS32027 HIS35001 HIS35230
HIS35600	PLISTART		HIS20050 HIS20051 HIS20057 HIS20058 HIS30001 HIS31001 HIS31101 HIS32025 HIS32027 HIS35001 HIS35101 HIS35102 HIS35103 HIS35110 HIS35111 HIS35600
HIS35601	PLISTART		HIS20050 HIS20058 HIS35020 HIS35601
HIS35610	PLISTART		HIS20050 HIS20058 HIS35610
HIS35700	PLISTART		HIS20050 HIS20058 HIS35003 HIS35700
HIS35701	PLISTART		HIS20050 HIS20058 HIS35002 HIS35701 HIS35710 HIS35711 HIS35712
HIS35702	PLISTART		HIS20050 HIS20053 HIS35702

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
HIS35703	PLISTART		HIS20050 HIS20058 HIS35003 HIS35703 HIS35710 HIS35711 HIS35712
HIS35720	COPY		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS35720
HIS35721	CREATE		HIS20050 HIS20057 HIS20058 HIS20905 HIS20991 HIS35721
HIS35722	REORG		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS20991 HIS35722
HIS35731	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS35011 HIS35731
HIS36000	RRXRDE	RRCRDQ	HIS36000 HIS35731
HIS36010	RRXRDE	RRXRD	HIS20050 HIS20051 HIS20058 HIS20905 HIS22001 HIS36001 HIS36010
HIS36600	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS21142 HIS30001 HIS31101 HIS32001 HIS36001 HIS36022 HIS36600
HIS36620	RFXSL		HIS20050 HIS20058 HIS20905 HIS36620
HIS36700	PLISTART		HIS20050 HIS20058 HIS20902 HIS36003 HIS36700
HIS36701	PLISTART		HIS20050 HIS20058 HIS20902 HIS20903 HIS36002 HIS36701 HIS36710 HIS36711 HIS36712
HIS36702	PLISTART		HIS20050 HIS20058 HIS36002 HIS36702
HIS36703	PLISTART		HIS20052 HIS20053 HIS20058 HIS20902 HIS20903 HIS21065 HIS36003 HIS36703 HIS36710 HIS36711 HIS36712
HIS36720	COPY		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS36720
HIS36721	CREATE		HIS20050 HIS20057 HIS20058 HIS20905 HIS20991 HIS36721
HIS36722	REORG		HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS20990 HIS20991 HIS36722
HIS36731	PLISTART		HIS20050 HIS20051 HIS20058 HIS36011 HIS36731
HIS37200	PLISTART		HIS20050 HIS20053 HIS20058 HIS21012 HIS37100 HIS37200
HIS37201	PLISTART		HIS20050 HIS20053 HIS20057 HIS20058 HIS21012 HIS21013 HIS37201

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	---- SOURCE MODULES ----
HIS37500	PLISTART		HIS20050 HIS20053 HIS20058 HIS21012 HIS35700
HIS37600	PLISTART		HIS20050 HIS20053 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS21013 HIS21016 HIS37600
HIS37610	PLISTART		HIS20050 HIS20053 HIS20057 HIS20058 HIS21012 HIS21013 HIS37610
HIS37611	PLISTART		HIS20050 HIS20053 HIS20057 HIS20058 HIS21012 HIS21013 HIS37611
HIS38000	USNRDQE	USNRDQ	HIS20056 HIS20058 HIS38000
HIS38010	USNRDE	USNRD	HIS20050 HIS20051 HIS20053 HIS20058 HIS20902 HIS20905 HIS21013 HIS22001 HIS38001 HIS38010 HIS38101
HIS38200	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS21013 HIS38011 HIS38200 HIS38202
HIS38204	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS21013 HIS38011 HIS38204 HIS38205 HIS38206 HIS38207
HIS38203	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS20981 HIS21013 HIS38011 HIS38208 HIS38209 HIS38210
HIS38211	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS21013 HIS38011 HIS38211 HIS38212 HIS38213 HIS38214
HIS38600	PLISTART		HIS20050 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS38600
HIS38700	PLISTART		HIS20050 HIS20053 HIS20056 HIS20058 HIS20902 HIS20907 HIS20909 HIS21013 HIS38700
HIS38701	PLISTART		HIS20050 HIS20051 HIS20053 HIS20056 HIS20057 HIS20058 HIS20902 HIS20903 HIS20907 HIS20909 HIS20981 HIS21013 HIS38001 HIS38100 HIS38701 HIS38705 HIS38710 HIS38711 HIS38712 HIS38714 HIS38715 HIS38716
HIS38702	PLISTART		HIS20050 HIS20053 HIS20056 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS21013 HIS38702

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
HIS38703	PLISTART		HIS20050 HIS20053 HIS20056 HIS20057 HIS20058 HIS20902 HIS20903 HIS20907 HIS20909 HIS20981 HIS21013 HIS38100 HIS38703 HIS38712 HIS38714 HIS38715 HIS38716
HIS38704	PLISTART		HIS20050 HIS20053 HIS20058 HIS21013 HIS38704
HIS38722	PLISTART		HIS20050 HIS20053 HIS20056 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS20990 HIS20991 HIS21013 HIS38722
HIS38731	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS20902 HIS20906 HIS20907 HIS20909 HIS38011 HIS38731
HIS38790	PLISTART		HIS20050 HIS20058 HIS38790
HIS39003	SKDFILE	SKDFILE	HIS20050 HIS20057 HIS20058 HIS20902 HIS20905 HIS39000 HIS39002 HIS39004 HIS39006 HIS39007 HIS39008
HIS39010	SKDRDE	SKDRD	HIS20050 HIS20051 HIS20053 HIS20058 HIS20905 HIS21013 HIS22001 HIS30001 HIS39001 HIS39010
HIS39200	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS20902 HIS20907 HIS20909 HIS21012 HIS39011 HIS39100 HIS39200
HIS39700	PLISTART		HIS20050 HIS20051 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS39005 HIS39700 HIS39710
HIS39701	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20903 HIS20907 HIS20909 HIS30001 HIS32023 HIS39005 HIS39701 HIS39710 HIS39711 HIS39712 HIS39713 HIS39714
HIS39702	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20903 HIS20907 HIS20909 HIS30001 HIS32023 HIS39005 HIS39702 HIS39710 HIS39711 HIS39712 HIS39713 HIS39714
HIS39703	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20903 HIS20907 HIS20909 HIS21065 HIS30001 HIS32023 HIS39005 HIS39703 HIS39710 HIS39711 HIS39712 HIS39713 HIS39714
HIS39703	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20903 HIS30001 HIS32023 HIS39005 HIS39708 HIS39710

LIST-LOADMOD-TABLE

--NAME--	ENTRY-NAME	ACCESS-NAME	----- SOURCE MODULES -----
			HIS39711 HIS39712 HIS39713 HIS39714
HIS39722	PLISTART		HIS20050 HIS20051 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS39001 HIS39003 HIS39722
HIS39731	PLISTART		HIS20050 HIS20051 HIS20053 HIS20057 HIS20058 HIS20902 HIS20907 HIS20909 HIS21012 HIS39001 HIS39011 HIS39100 HIS39731
HIS39735	PLISTART		HIS20050 HIS20051 HIS20053 HIS20058 HIS20902 HIS20903 HIS30001 HIS32023 HIS39011 HIS39711 HIS39712 HIS39713 HIS39714 HIS39735
HIS39799	PLISTART		HIS20050 HIS20057 HIS20058 HIS39799

NUMBER OF LOAD MODULES LISTED: 209

APPENDIX C

SOURCE MODULE CROSS-REFERENCE

This cross-reference listing has been generated from the load module table listed in Appendix B. It is intended as a programming aid to be used when a source module is updated and when planning to modify a source module. The listing shows all of the load modules in which each source module is used.

LIST-SOURCE-XREF

-SOURCE- ----- LOAD MODULES -----

CALJUL	HIS33311					
HIS20000	HIS20000					
HIS20001	HIS20000					
HIS20002	HIS20000					
HIS20003	HIS20000					
HIS20004	HIS20000					
HIS20005	HIS20000					
HIS20006	HIS20000					
HIS20007	HIS20000					
HIS20050	HIS20100	HIS21000	HIS21001	HIS21010	HIS21011	HIS21020
	HIS21030	HIS21031	HIS21040	HIS21041	HIS21050	HIS21051
	HIS21060	HIS21061	HIS21062	HIS21070	HIS21080	HIS21081
	HIS21090	HIS21091	HIS21110	HIS21130	HIS21140	HIS21141
	HIS21900	HIS21901	HIS21902	HIS21903	HIS22000	HIS22200
	HIS23010	HIS23020	HIS23024	HIS23030	HIS23031	HIS23040
	HIS23041	HIS23050	HIS23071	HIS23080	HIS23090	HIS30000
	HIS30010	HIS30200	HIS30201	HIS30202	HIS30206	HIS30210
	HIS30300	HIS30301	HIS30302	HIS30700	HIS30701	HIS30702
	HIS30703	HIS30720	HIS30721	HIS30722	HIS30730	HIS30731
	HIS30732	HIS30735	HIS31000	HIS31010	HIS31020	HIS31200
	HIS31201	HIS31202	HIS31600	HIS31601	HIS31700	HIS31701
	HIS31702	HIS31703	HIS31704	HIS31720	HIS31721	HIS31722
	HIS31730	HIS31731	HIS31732	HIS32030	HIS32700	HIS32701
	HIS32703	HIS32704	HIS32720	HIS32721	HIS32722	HIS32731
	HIS32740	HIS33080	HIS33090	HIS33200	HIS33201	HIS33202
	HIS33205	HIS33209	HIS33213	HIS33214	HIS33250	HIS33310
	HIS33311	HIS33320	HIS33500	HIS33600	HIS33620	HIS33630
	HIS33640	HIS33700	HIS33701	HIS33703	HIS33720	HIS33721
	HIS33722	HIS33731	HIS33732	HIS33734	HIS33735	HIS34000
	HIS34010	HIS34020	HIS34200	HIS34201	HIS34202	HIS34203
	HIS34204	HIS34205	HIS34600	HIS34620	HIS34700	HIS34701
	HIS34702	HIS34703	HIS34720	HIS34721	HIS34722	HIS34731
	HIS35000	HIS35010	HIS35200	HIS35220	HIS35221	HIS35222
	HIS35223	HIS35230	HIS35600	HIS35601	HIS35610	HIS35700
	HIS35701	HIS35702	HIS35703	HIS35720	HIS35721	HIS35722
	HIS35731	HIS36010	HIS36600	HIS36620	HIS36700	HIS36701
	HIS36702	HIS36720	HIS36721	HIS36722	HIS36731	HIS37200
	HIS37201	HIS37500	HIS37600	HIS37610	HIS37611	HIS38010
	HIS38200	HIS38204	HIS38208	HIS38211	HIS38600	HIS38700
	HIS38701	HIS38702	HIS38703	HIS38704	HIS38722	HIS38731
	HIS38790	HIS39008	HIS39010	HIS39200	HIS39700	HIS39701
	HIS39702	HIS39703	HIS39708	HIS39722	HIS39731	HIS39735
	HIS39799					

LIST-SOURCE-XREF

-SOURCE-

----- LOAD MODULES -----

HIS20051	HIS21110	HIS22000	HIS23020	HIS30010	HIS30200	HIS30201
	HIS30202	HIS30206	HIS30210	HIS30300	HIS30301	HIS30302
	HIS30701	HIS30703	HIS30730	HIS30731	HIS30732	HIS30735
	HIS31010	HIS31200	HIS31201	HIS31202	HIS31600	HIS31601
	HIS31730	HIS31731	HIS31732	HIS32731	HIS32740	HIS33090
	HIS33200	HIS33201	HIS33202	HIS33203	HIS33209	HIS33213
	HIS33214	HIS33310	HIS33320	HIS33500	HIS33600	HIS33630
	HIS33640	HIS33701	HIS33703	HIS33731	HIS33735	HIS34010
	HIS34200	HIS34201	HIS34202	HIS34203	HIS34204	HIS34205
	HIS34600	HIS34620	HIS34731	HIS35010	HIS35200	HIS35223
	HIS35230	HIS35600	HIS35731	HIS36010	HIS36600	HIS36731
	HIS38010	HIS38200	HIS38204	HIS38208	HIS38211	HIS38701
	HIS38731	HIS39010	HIS39200	HIS39700	HIS39701	HIS39702
	HIS39703	HIS39708	HIS39722	HIS39731	HIS39735	
HIS20052	HIS21061	HIS21901	HIS21902	HIS23080	HIS36703	
HIS20053	HIS20100	HIS21000	HIS21001	HIS21010	HIS21011	HIS21020
	HIS21030	HIS21031	HIS21040	HIS21041	HIS21050	HIS21051
	HIS21060	HIS21070	HIS21080	HIS21081	HIS21090	HIS21091
	HIS21110	HIS21130	HIS21140	HIS21141	HIS22000	HIS22200
	HIS30200	HIS30202	HIS30206	HIS30210	HIS30300	HIS30301
	HIS30302	HIS30701	HIS30703	HIS30730	HIS30731	HIS30732
	HIS30735	HIS31200	HIS31703	HIS32703	HIS33090	HIS33202
	HIS33205	HIS33209	HIS33214	HIS33250	HIS33320	HIS33630
	HIS33640	HIS33701	HIS33703	HIS33732	HIS33734	HIS33735
	HIS34200	HIS34201	HIS34202	HIS34205	HIS34600	HIS34703
	HIS35220	HIS35731	HIS36600	HIS36703	HIS37200	HIS37201
	HIS37500	HIS37600	HIS37610	HIS37611	HIS38010	HIS38200
	HIS38204	HIS38208	HIS38211	HIS38700	HIS38701	HIS38702
	HIS38703	HIS38704	HIS38722	HIS38731	HIS39010	HIS39200
	HIS39701	HIS39702	HIS39703	HIS39708	HIS39731	HIS39735
HIS20054	HIS21061	HIS21900	HIS21902	HIS23024		
HIS20055	HIS21001	HIS21011	HIS21020	HIS21031	HIS21041	HIS21051
	HIS21062	HIS21070	HIS21081	HIS21130	HIS21141	
HIS20056	HIS21001	HIS21900	HIS21901	HIS21903	HIS23030	HIS23031
	HIS23071	HIS30701	HIS30703	HIS30730	HIS33701	HIS33703
	HIS33735	HIS38000	HIS38208	HIS38700	HIS38701	HIS38702
	HIS38703	HIS38722				
HIS20057	HIS21061	HIS21070	HIS21130	HIS21902	HIS22000	HIS23024
	HIS23050	HIS23090	HIS30700	HIS30701	HIS30702	HIS30703
	HIS30720	HIS30721	HIS30722	HIS31700	HIS31701	HIS31702
	HIS31703	HIS31720	HIS31721	HIS31722	HIS32700	HIS32701
	HIS32703	HIS32704	HIS32720	HIS32721	HIS32722	HIS33320
	HIS33500	HIS33701	HIS34720	HIS34721	HIS34722	HIS35221
	HIS35600	HIS35720	HIS35721	HIS35722	HIS36720	HIS36721
	HIS36722	HIS37201	HIS37600	HIS37610	HIS37611	HIS38200
	HIS38204	HIS38208	HIS38211	HIS38600	HIS38701	HIS38702
	HIS38703	HIS38722	HIS39000	HIS39700	HIS39701	HIS39702
	HIS39703	HIS39708	HIS39722	HIS39731	HIS39799	

LIST-SOURCE-XREF

-SOURCE- ----- LOAD MODULES -----

HIS20053 HIS20100 HIS21000 HIS21001 HIS21010 HIS21011 HIS21020
 HIS21030 HIS21031 HIS21040 HIS21041 HIS21050 HIS21051
 HIS21060 HIS21061 HIS21062 HIS21070 HIS21080 HIS21081
 HIS21090 HIS21091 HIS21110 HIS21130 HIS21140 HIS21141
 HIS21900 HIS21901 HIS21902 HIS21903 HIS22000 HIS22200
 HIS23010 HIS23020 HIS23024 HIS23030 HIS23031 HIS23040
 HIS23041 HIS23050 HIS23071 HIS23080 HIS23090 HIS30000
 HIS30010 HIS30200 HIS30201 HIS30202 HIS30206 HIS30210
 HIS30300 HIS30301 HIS30302 HIS30700 HIS30701 HIS30702
 HIS30703 HIS30720 HIS30721 HIS30722 HIS30730 HIS30731
 HIS30732 HIS30735 HIS31000 HIS31010 HIS31020 HIS31200
 HIS31201 HIS31202 HIS31600 HIS31601 HIS31700 HIS31701
 HIS31702 HIS31703 HIS31704 HIS31720 HIS31721 HIS31722
 HIS31730 HIS31731 HIS31732 HIS32030 HIS32700 HIS32701
 HIS32703 HIS32704 HIS32720 HIS32721 HIS32722 HIS32731
 HIS32740 HIS33080 HIS33090 HIS33200 HIS33201 HIS33202
 HIS33205 HIS33209 HIS33213 HIS33214 HIS33250 HIS33310
 HIS33311 HIS33320 HIS33500 HIS33600 HIS33620 HIS33630
 HIS33640 HIS33700 HIS33701 HIS33703 HIS33720 HIS33721
 HIS33722 HIS33731 HIS33732 HIS33734 HIS33735 HIS34000
 HIS34010 HIS34020 HIS34200 HIS34201 HIS34202 HIS34203
 HIS34204 HIS34205 HIS34600 HIS34620 HIS34700 HIS34701
 HIS34702 HIS34703 HIS34720 HIS34721 HIS34722 HIS34731
 HIS35000 HIS35010 HIS35200 HIS35220 HIS35221 HIS35222
 HIS35223 HIS35230 HIS35600 HIS35601 HIS35610 HIS35700
 HIS35701 HIS35702 HIS35703 HIS35720 HIS35721 HIS35722
 HIS35731 HIS36010 HIS36600 HIS36620 HIS36700 HIS36701
 HIS36702 HIS36703 HIS36720 HIS36721 HIS36722 HIS36731
 HIS37200 HIS37201 HIS37500 HIS37600 HIS37610 HIS37611
 HIS38000 HIS38010 HIS38200 HIS38204 HIS38208 HIS38211
 HIS38600 HIS38700 HIS38701 HIS38702 HIS38703 HIS38704
 HIS38722 HIS38731 HIS38740 HIS39008 HIS39010 HIS39200
 HIS39700 HIS39701 HIS39702 HIS39703 HIS39708 HIS39722
 HIS39731 HIS39735 HIS39799

HIS20100 HIS20100

HIS20101 HIS20100

HIS20102 HIS20100

HIS20103 HIS20100

HIS20104 HIS20100

HIS20105 HIS20100

HIS20106 HIS20100

HIS20107 HIS20100

HIS20200 HIS20200

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS20400	HIS20400
HIS20401	HIS20400
HIS20900	HIS33205
HIS20901	HIS33200 HIS33205 HIS33209 HIS33311 HIS33320 HIS33600 HIS33731
HIS20902	HIS20100 HIS23020 HIS23030 HIS23031 HIS23040 HIS23041 HIS23050 HIS23071 HIS23090 HIS30700 HIS30701 HIS30702 HIS30703 HIS30720 HIS30722 HIS30735 HIS31700 HIS31701 HIS31702 HIS31703 HIS31704 HIS31720 HIS31722 HIS32700 HIS32701 HIS32703 HIS32704 HIS32720 HIS32722 HIS33310 HIS33500 HIS33735 HIS34700 HIS34701 HIS34701 HIS34702 HIS34703 HIS34720 HIS34722 HIS35720 HIS35722 HIS36700 HIS36701 HIS36703 HIS36720 HIS36722 HIS37600 HIS38010 HIS38200 HIS38204 HIS38208 HIS38211 HIS38600 HIS38700 HIS38701 HIS38702 HIS38703 HIS38722 HIS38731 HIS39008 HIS39200 HIS39700 HIS39701 HIS39702 HIS39703 HIS39708 HIS39722 HIS39731 HIS39735
HIS20903	HIS22000 HIS30701 HIS30703 HIS30735 HIS31701 HIS31703 HIS32701 HIS32703 HIS32704 HIS33500 HIS33701 HIS33703 HIS33735 HIS34703 HIS36701 HIS36703 HIS38701 HIS38703 HIS39701 HIS39702 HIS39703 HIS39708 HIS39735
HIS20904	HIS33090
HIS20905	HIS30000 HIS30010 HIS30720 HIS30721 HIS30722 HIS31000 HIS31010 HIS31020 HIS31720 HIS31721 HIS31722 HIS32030 HIS32720 HIS32721 HIS32722 HIS33080 HIS33090 HIS34000 HIS34010 HIS34020 HIS34720 HIS34721 HIS34722 HIS35000 HIS35010 HIS35720 HIS35721 HIS35722 HIS36010 HIS36620 HIS36720 HIS36721 HIS36722 HIS38010 HIS39008 HIS39010
HIS20906	HIS38731
HIS20907	HIS20100 HIS23020 HIS23030 HIS23031 HIS23040 HIS23041 HIS23050 HIS23071 HIS23090 HIS33310 HIS33500 HIS33735 HIS37600 HIS38200 HIS38204 HIS38208 HIS38211 HIS38600 HIS38700 HIS38701 HIS38702 HIS38703 HIS38722 HIS38731 HIS39200 HIS39700 HIS39701 HIS39702 HIS39703 HIS39722 HIS39731
HIS20909	HIS20100 HIS23020 HIS23030 HIS23031 HIS23040 HIS23041 HIS23050 HIS23071 HIS23090 HIS33310 HIS33500 HIS33735 HIS37600 HIS38200 HIS38204 HIS38208 HIS38211 HIS38600 HIS33700 HIS38701 HIS38702 HIS38703 HIS38722 HIS38731 HIS39200 HIS39700 HIS39701 HIS39702 HIS39703 HIS39722 HIS39731
HIS20980	HIS23030 HIS23031 HIS23071

LIST-SOURCE-XREF

-SOURCE- ----- LOAD MODULES -----

HIS20981	HIS23031 HIS38208 HIS38701 HIS38703
HIS20982	HIS23031 HIS23040 HIS23041
HIS20983	HIS23041
HIS20990	HIS30720 HIS30722 HIS31720 HIS31722 HIS32720 HIS32722 HIS34720 HIS34722 HIS35720 HIS35722 HIS36720 HIS36722 HIS38722
HIS20991	HIS30721 HIS30722 HIS31721 HIS31722 HIS32721 HIS32722 HIS34721 HIS34722 HIS35721 HIS35722 HIS36721 HIS36722 HIS38722
HIS21000	HIS21000
HIS21001	HIS21001
HIS21010	HIS21010
HIS21011	HIS21011
HIS21012	HIS22000 HIS30200 HIS30202 HIS30300 HIS30301 HIS30302 HIS30701 HIS30703 HIS30730 HIS30732 HIS30735 HIS33202 HIS33209 HIS33214 HIS33250 HIS33732 HIS33734 HIS34200 HIS35220 HIS37200 HIS37201 HIS37500 HIS37610 HIS37611 HIS39200 HIS39731
HIS21013	HIS22000 HIS33320 HIS37201 HIS37600 HIS37610 HIS37611 HIS38010 HIS38200 HIS38204 HIS38206 HIS38211 HIS38700 HIS38701 HIS38702 HIS38703 HIS38704 HIS38722 HIS39010
HIS21015	HIS33701 HIS33703 HIS33735 HIS37600
HIS21020	HIS21020
HIS21021	HIS31501
HIS21030	HIS21030
HIS21031	HIS21031
HIS21032	HIS30202 HIS30701 HIS30703 HIS30730 HIS30735
HIS21033	HIS22000 HIS30202
HIS21040	HIS21040
HIS21041	HIS21041
HIS21042	HIS22000 HIS30200 HIS30202 HIS30701 HIS30703 HIS30731 HIS30735 HIS34600

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS21050	HIS21050
HIS21051	HIS21051
HIS21052	HIS34600
HIS21060	HIS21060
HIS21061	HIS21061
HIS21062	HIS21062
HIS21063	HIS21060 HIS21062
HIS21064	HIS21062
HIS21065	HIS30703 HIS31703 HIS32703 HIS34703 HIS36703 HIS39703
HIS21070	HIS21070
HIS21080	HIS21080
HIS21081	HIS21081
HIS21090	HIS21090
HIS21091	HIS21091
HIS21110	HIS21110
HIS21112	HIS21110 HIS33630
HIS21113	HIS33630
HIS21130	HIS21130
HIS21140	HIS21140
HIS21141	HIS21141
HIS21142	HIS22000 HIS30200 HIS30202 HIS30206 HIS30210 HIS31200 HIS33205 HIS33209 HIS33701 HIS33703 HIS33732 HIS33734 HIS33735 HIS34200 HIS34201 HIS34202 HIS34205 HIS34600 HIS36600
HIS21144	HIS22000
HIS21601	HIS31601
HIS21900	HIS21900
HIS21901	HIS21901

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS21902	HIS21902
HIS21903	HIS21903
HIS22000	HIS22000
HIS22001	HIS30010 HIS31010 HIS31010 HIS33090 HIS34010 HIS36010 HIS38010 HIS39010
HIS22010	HIS22000
HIS22011	HIS22000
HIS22012	HIS22000
HIS22013	HIS22000
HIS22014	HIS22000
HIS22020	HIS22000
HIS22021	HIS22000
HIS22030	HIS22000
HIS22031	HIS22000
HIS22200	HIS22200
HIS23010	HIS23010
HIS23020	HIS23020
HIS23021	HIS23020
HIS23023	HIS23023
HIS23024	HIS23024
HIS23030	HIS23030
HIS23031	HIS23031
HIS23040	HIS23040
HIS23041	HIS23041
HIS23050	HIS23050
HIS23060	HISCOPY
HIS23061	PRNT133

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS23071	HIS23071
HIS23080	HIS23080
HIS23090	HIS23090
HIS30000	HIS30000
HIS30001	HIS21110 HIS22000 HIS30010 HIS30201 HIS30206 HIS30210 HIS30732 HIS31200 HIS31202 HIS31731 HIS32740 HIS33214 HIS33600 HIS33630 HIS33701 HIS33703 HIS33735 HIS34200 HIS34600 HIS35200 HIS35230 HIS35600 HIS36600 HIS39010 HIS39701 HIS39702 HIS39703 HIS39708 HIS39735
HIS30002	HIS30701 HIS30702
HIS30003	HIS30700 HIS30703
HIS30010	HIS30010
HIS30011	HIS30200 HIS30202 HIS30300 HIS30301 HIS30302 HIS30730 HIS30731 HIS30735
HIS30100	HIS21110 HIS30200 HIS30202 HIS30206 HIS30731 HIS30732 HIS32740 HIS33630
HIS30101	HIS33701 HIS33703 HIS33735
HIS30200	HIS30200
HIS30201	HIS30201
HIS30202	HIS30202
HIS30203	HIS30202
HIS30204	HIS30202
HIS30205	HIS30202
HIS30206	HIS30206
HIS30207	HIS30206
HIS30208	HIS30206
HIS30209	HIS30206
HIS30210	HIS30210
HIS30211	HIS30210
HIS30212	HIS30210

LIST-SOURCE-XREF

-SOURCE- ----- LOAD MODULES -----

HIS30300	HIS30300
HIS30301	HIS30301
HIS30302	HIS30302
HIS30700	HIS30700
HIS30701	HIS30701
HIS30702	HIS30702
HIS30703	HIS30703
HIS30710	HIS30701 HIS30703
HIS30711	HIS30701 HIS30703 HIS30730
HIS30712	HIS30701 HIS30703 HIS30735
HIS30720	HIS30720
HIS30721	HIS30721
HIS30722	HIS30722
HIS30730	HIS30730
HIS30731	HIS30731
HIS30732	HIS30732
HIS30735	HIS30735
HIS31000	HIS31000
HIS31001	HIS22000 HIS30301 HIS30302 HIS31010 HIS31600 HIS31732 HIS33310 HIS33600 HIS34600 HIS35200 HIS35230 HIS35600
HIS31002	HIS31701 HIS31702
HIS31003	HIS31700 HIS31703
HIS31010	HIS31010
HIS31011	HIS31730 HIS31731
HIS31020	HIS31020
HIS31021	HIS31200 HIS31201 HIS31202 HIS34600
HIS31022	HIS31600

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS31100	HIS33600 HIS34600
HIS31101	HIS35200 HIS35230 HIS35600 HIS36600
HIS31200	HIS31200
HIS31201	HIS31201
HIS31202	HIS31202
HIS31600	HIS31600
HIS31700	HIS31700
HIS31701	HIS31701
HIS31702	HIS31702
HIS31703	HIS31703
HIS31704	HIS31704
HIS31710	HIS31700 HIS31701 HIS31702 HIS31703
HIS31711	HIS31701 HIS31703 HIS31730
HIS31712	HIS31701 HIS31703
HIS31720	HIS31720
HIS31721	HIS31721
HIS31722	HIS31722
HIS31730	HIS31730
HIS31731	HIS31731
HIS31732	HIS31732
HIS32000	HIS32030
HIS32001	HIS32731 HIS36600
HIS32002	HIS32030
HIS32004	HIS32030
HIS32005	HIS32701
HIS32006	HIS32700 HIS32703
HIS32007	HIS32704

LIST-SOURCE-XREF

-SOURCE- ----- LOAD MODULES -----

HIS32020	HIS32030
HIS32021	HIS31600 HIS31731 HIS32740 HIS33310 HIS33500 HIS33630 HIS33701 HIS33703 HIS33735
HIS32022	HIS32030
HIS32023	HIS30701 HIS30703 HIS30735 HIS39701 HIS39702 HIS39703 HIS39703 HIS39735
HIS32024	HIS32030
HIS32025	HIS33600 HIS34600 HIS35223 HIS35230 HIS35600
HIS32026	HIS32030
HIS32027	HIS35200 HIS35230 HIS35600
HIS32030	HIS32030
HIS32700	HIS32700
HIS32701	HIS32701
HIS32703	HIS32703
HIS32704	HIS32704
HIS32710	HIS32700 HIS32701 HIS32703 HIS32704
HIS32711	HIS32701 HIS32703
HIS32712	HIS32701 HIS32703
HIS32720	HIS32720
HIS32721	HIS32721
HIS32722	HIS32722
HIS32731	HIS32731
HIS32740	HIS32740
HIS33000	HIS33080
HIS33001	HIS33090
HIS33002	HIS33080
HIS33003	HIS22000 HIS33090 HIS33600 HIS33630
HIS33010	HIS33080

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS33011	HIS33090
HIS33012	HIS33080
HIS33013	HIS22000 HIS33090 HIS33320
HIS33020	HIS33080
HIS33021	HIS33090 HIS33500 HIS33600 HIS34600
HIS33022	HIS33630
HIS33080	HIS33080
HIS33090	HIS33090
HIS33091	HIS33200 HIS33201 HIS33202 HIS33205 HIS33209 HIS33213 HIS33214 HIS33310 HIS33320 HIS33640 HIS33731 HIS33735
HIS33100	HIS33731
HIS33101	HIS33731
HIS33102	HIS33720 HIS33722
HIS33103	HIS33721 HIS33722
HIS33200	HIS33200
HIS33201	HIS33201
HIS33202	HIS33202
HIS33203	HIS33202
HIS33204	HIS33202
HIS33205	HIS33205
HIS33206	HIS33205
HIS33207	HIS33205
HIS33208	HIS33205
HIS33209	HIS33209
HIS33210	HIS33209
HIS33211	HIS33209
HIS33212	HIS33209

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS33213	HIS33213
HIS33214	HIS33214
HIS33215	HIS33214
HIS33216	HIS33214
HIS33217	HIS33214
HIS33250	HIS33250
HIS33310	HIS33310
HIS33311	HIS33311
HIS33312	HIS33311
HIS33313	HIS33311
HIS33314	HIS33311
HIS33320	HIS33320
HIS33321	HIS33320
HIS33322	HIS33320
HIS33323	HIS33320
HIS33324	HIS33320
HIS33500	HIS33500 HIS33500
HIS33501	HIS33500 HIS33500
HIS33502	HIS33500 HIS33500
HIS33503	HIS33500 HIS33500
HIS33600	HIS33600
HIS33601	HIS33600
HIS33602	HIS33600
HIS33620	HIS33620
HIS33630	HIS33630
HIS33631	HIS33630
HIS33632	HIS33630

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS33633	HIS33630
HIS33640	HIS33640
HIS33700	HIS33700
HIS33701	HIS33701
HIS33703	HIS33703
HIS33712	HIS33701 HIS33703 HIS33735
HIS33713	HIS33701 HIS33703 HIS33735
HIS33714	HIS33701 HIS33703 HIS33735
HIS33715	HIS33701 HIS33703 HIS33731 HIS33735
HIS33720	HIS33720
HIS33721	HIS33721
HIS33722	HIS33722
HIS33731	HIS33731
HIS33732	HIS33732
HIS33733	HIS33732
HIS33734	HIS33734
HIS33735	HIS33735
HIS34000	HIS34000
HIS34001	HIS34010 HIS34600
HIS34002	HIS34701 HIS34702
HIS34003	HIS34700 HIS34703
HIS34010	HIS34010
HIS34011	HIS34731
HIS34020	HIS34020
HIS34021	HIS34200 HIS34201 HIS34202 HIS34203 HIS34204 HIS34205 HIS34600 HIS34620
HIS34022	HIS34600

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS34100	HIS34600 HIS34620
HIS34101	HIS34201 HIS34202
HIS34200	HIS34200
HIS34201	HIS34201
HIS34202	HIS34202
HIS34203	HIS34203
HIS34204	HIS34204
HIS34205	HIS34205
HIS34600	HIS34600
HIS34601	HIS34600
HIS34602	HIS34600
HIS34603	HIS34600
HIS34604	HIS34600
HIS34605	HIS34600
HIS34606	HIS34600
HIS34607	HIS34600
HIS34608	HIS34600
HIS34609	HIS34600
HIS34620	HIS34620
HIS34700	HIS34700
HIS34701	HIS34701
HIS34702	HIS34702
HIS34703	HIS34703
HIS34710	HIS34700 HIS34701 HIS34702 HIS34703
HIS34711	HIS34701 HIS34703
HIS34712	HIS34701 HIS34703
HIS34720	HIS34720

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS34721	HIS34721
HIS34722	HIS34722
HIS34731	HIS34731
HIS35000	HIS35000
HIS35001	HIS31010 HIS35200 HIS35230 HIS35600
HIS35002	HIS35701
HIS35003	HIS35700 HIS35703
HIS35010	HIS31010
HIS35011	HIS35731
HIS35020	HIS35220 HIS35221 HIS35222 HIS35601
HIS35101	HIS35200 HIS35600
HIS35102	HIS35200 HIS35600
HIS35103	HIS35600
HIS35110	HIS35600
HIS35111	HIS35600
HIS35200	HIS35200
HIS35220	HIS35220
HIS35221	HIS35221
HIS35222	HIS35222
HIS35223	HIS35223
HIS35230	HIS35230
HIS35600	HIS35600
HIS35601	HIS35601
HIS35610	HIS35610
HIS35700	HIS35700 HIS37500
HIS35701	HIS35701
HIS35702	HIS35702

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS35703	HIS35703
HIS35710	HIS35701 HIS35703
HIS35711	HIS35701 HIS35703
HIS35712	HIS35701 HIS35703
HIS35720	HIS35720
HIS35721	HIS35721
HIS35722	HIS35722
HIS35731	HIS35731
HIS36000	HIS36000
HIS36001	HIS36010 HIS36600
HIS36002	HIS36701 HIS36702
HIS36003	HIS36700 HIS36703
HIS36010	HIS36010
HIS36011	HIS36731
HIS36022	HIS36600
HIS36600	HIS36600
HIS36620	HIS36620
HIS36700	HIS36700
HIS36701	HIS36701
HIS36702	HIS36702
HIS36703	HIS36703
HIS36710	HIS36701 HIS36703
HIS36711	HIS36701 HIS36703
HIS36712	HIS36701 HIS36703
HIS36720	HIS36720
HIS36721	HIS36721
HIS36722	HIS36722

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS36731	HIS36731
HIS37100	HIS37200
HIS37200	HIS37200
HIS37201	HIS37201
HIS37600	HIS37600
HIS37610	HIS37610
HIS37611	HIS37611
HIS38000	HIS38000
HIS38001	HIS38010 HIS38701
HIS38010	HIS38010
HIS38011	HIS38200 HIS38204 HIS38208 HIS38211 HIS38731
HIS38100	HIS38701 HIS38703
HIS38101	HIS38010
HIS38200	HIS38200
HIS38202	HIS38200
HIS38204	HIS38204
HIS38205	HIS38204
HIS38206	HIS38204
HIS38207	HIS38204
HIS38208	HIS38208
HIS38209	HIS38208
HIS38210	HIS38208
HIS38211	HIS38211
HIS38212	HIS38211
HIS38213	HIS38211
HIS38214	HIS38211
HIS38600	HIS38600

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS38700	HIS38700
HIS38701	HIS38701
HIS38702	HIS38702
HIS38703	HIS38703
HIS38704	HIS38704
HIS38705	HIS38701
HIS38710	HIS38701
HIS38711	HIS38701
HIS38712	HIS38701 HIS38703
HIS38714	HIS38701 HIS38703
HIS38715	HIS38701 HIS38703
HIS38716	HIS38701 HIS38703
HIS38722	HIS38722
HIS38731	HIS38731
HIS38790	HIS38790
HIS39000	HIS39008
HIS39001	HIS39010 HIS39722 HIS39731
HIS39002	HIS39008
HIS39003	HIS39722
HIS39004	HIS39008
HIS39005	HIS39700 HIS39701 HIS39702 HIS39703 HIS39708
HIS39006	HIS39008
HIS39007	HIS39008
HIS39008	HIS39008
HIS39010	HIS39010
HIS39011	HIS39200 HIS39731 HIS39735
HIS39100	HIS39200 HIS39731

LIST-SOURCE-XREF

-SOURCE-	----- LOAD MODULES -----
HIS39200	HIS39200
HIS39700	HIS39700
HIS39701	HIS39701
HIS39702	HIS39702
HIS39703	HIS39703
HIS39708	HIS39708
HIS39710	HIS39700 HIS39701 HIS39702 HIS39703 HIS39708
HIS39711	HIS39701 HIS39702 HIS39703 HIS39708 HIS39735
HIS39712	HIS39701 HIS39702 HIS39703 HIS39708 HIS39735
HIS39713	HIS39701 HIS39702 HIS39703 HIS39708 HIS39735
HIS39714	HIS39701 HIS39702 HIS39703 HIS39708 HIS39735
HIS39722	HIS39722
HIS39731	HIS39731
HIS39735	HIS39735
HIS39799	HIS39799

----- NUMBER OF SOURCE MODULES: 443



